SERVICE MANUAL

W670SZQ

notebook



Notebook Computer

W670SZQ

Service Manual

Notice

Version 1.0
October 2013

Trademarks

About this Manual

This manual is intended for service personnel who have completed sufficient training to undertake the maintenance and inspection of personal computers.

It is organized to allow you to look up basic information for servicing and/or upgrading components of the ***W670SZQ*** series notebook PC.

The following information is included:

Chapter 1, Introduction, provides general information about the location of system elements and their specifications.
Chapter 2, Disassembly, provides step-by-step instructions for disassembling parts and subsystems and how to upgrade elements of the system.

Appendix A, Part Lists
Appendix B, Schematic Diagrams
Appendix C, Updating the FLASH ROM BIOS

IMPORTANT SAFETY INSTRUCTIONS

Follow basic safety precautions, including those listed below, to reduce the risk of fire, electric shock and injury to persons when using any electrical equipment:

1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
5. This product is intended to be supplied by a Listed Power Unit as follows:

- AC Input of 100 - 240V, 50 - 60Hz, DC Output of 19.5V, 6.15A (**120** Watts) minimum AC/DC Adapter.

CAUTION

This Computer's Optical Device is a Laser Class 1 Product

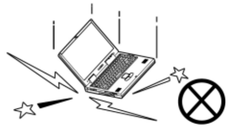
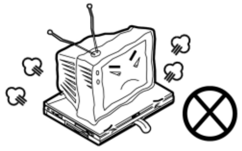
FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
This device may not cause harmful interference.
This device must accept any interference received, including interference that may cause undesired operation.

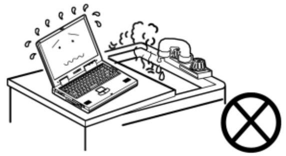
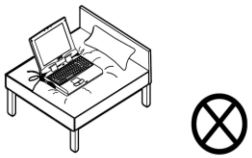
Instructions for Care and Operation

The notebook computer is quite rugged, but it can be damaged. To prevent this, follow these suggestions:

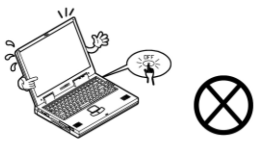
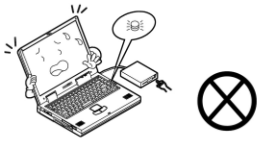
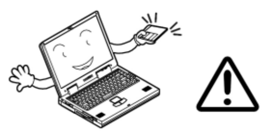
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.

Do not expose the computer to any shock or vibration. 	*Do not place it on an unstable surface.* 	*Do not place anything heavy on the computer.* 

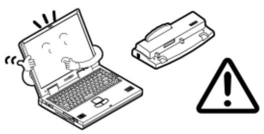
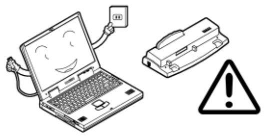
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.

Do not expose it to excessive heat or direct sunlight. 	*Do not leave it in a place where foreign matter or moisture may affect the system.* 	*Don't use or store the computer in a humid environment.* 	*Do not place the computer on any surface which will block the vents.* 

3. **Follow the proper working procedures for the computer**. Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted.

Do not turn off the power until you properly shut down all programs. 	*Do not turn off any peripheral devices when the computer is on.* 	*Do not disassemble the computer by yourself.* 	*Perform routine maintenance on your computer.* 

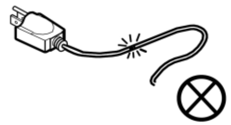
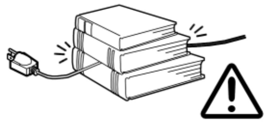
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices**.

Use only approved brands of peripherals.	*Unplug the power cord before attaching peripheral devices.*
	

Power Safety

The computer has specific power requirements:

- Only use a power adapter approved for use with this computer.
- Your AC adapter may be designed for international travel but it still requires a steady, uninterrupted power supply. If you are unsure of your local power specifications, consult your service representative or local power company.
- The power adapter may have either a 2-prong or a 3-prong grounded plug. The third prong is an important safety feature; do not defeat its purpose. If you do not have access to a compatible outlet, have a qualified electrician install one.
- When you want to unplug the power cord, be sure to disconnect it by the plug head, not by its wire.
- Make sure the socket and any extension cord(s) you use can support the total current load of all the connected devices.
- Before cleaning the computer, make sure it is disconnected from any external power supplies.

Do not plug in the power cord if you are wet.	*Do not use the power cord if it is broken.*	*Do not place heavy objects on the power cord.*
		

Preface

Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines and power cord). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

Battery Precautions

- Only use batteries designed for this computer. The wrong battery type may explode, leak or damage the computer.
- Do not continue to use a battery that has been dropped, or that appears damaged (e.g. bent or twisted) in any way. Even if the computer continues to work with a damaged battery in place, it may cause circuit damage, which may possibly result in fire.
- Recharge the batteries using the notebook’s system. Incorrect recharging may make the battery explode.
- Do not try to repair a battery pack. Refer any battery pack repair or replacement to your service representative or qualified service personnel.
- Keep children away from, and promptly dispose of a damaged battery. Always dispose of batteries carefully. Batteries may explode or leak if exposed to fire, or improperly handled or discarded.
- Keep the battery away from metal appliances.
- Affix tape to the battery contacts before disposing of the battery.
- Do not touch the battery contacts with your hands or metal objects.

Battery Guidelines

The following can also apply to any backup batteries you may have.

- If you do not use the battery for an extended period, then remove the battery from the computer for storage.
- Before removing the battery for storage charge it to 60% - 70%.
- Check stored batteries at least every 3 months and charge them to 60% - 70%.

Battery Disposal

The product that you have purchased contains a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

Caution

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used battery according to the manufacturer’s instructions.

Battery Level

Click the battery icon in the taskbar to see the current battery level and charge status. A battery that drops below a level of 10% will not allow the computer to boot up. Make sure that any battery that drops below 10% is recharged within one week.

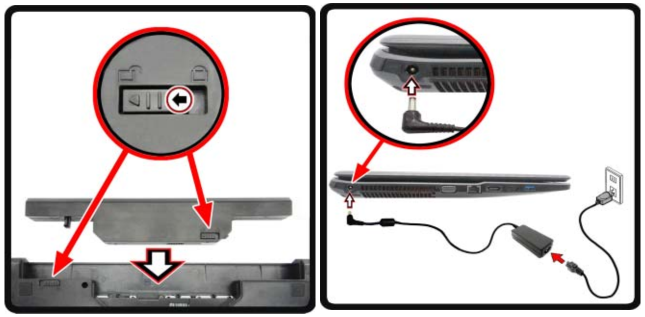
Related Documents

You may also need to consult the following manual for additional information:

User’s Manual on CD/DVD
This describes the notebook PC’s features and the procedures for operating the computer and its ROM-based setup program. It also describes the installation and operation of the utility programs provided with the notebook PC.

System Startup

1. Remove all packing materials.
2. Place the computer on a stable surface.
3. Insert the battery and make sure it is locked in position.
4. Securely attach any peripherals you want to use with the computer (e.g. keyboard and mouse) to their ports.
5. Attach the AC/DC adapter to the DC-In jack on the left of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter.
6. Use one hand to raise the lid/LCD to a comfortable viewing angle (do not exceed 130 degrees); use the other hand (as illustrated in Figure 1) to support the base of the computer (**Note**: **Never** lift the computer by the lid/LCD).
7. Press the power button to turn the computer “on”.



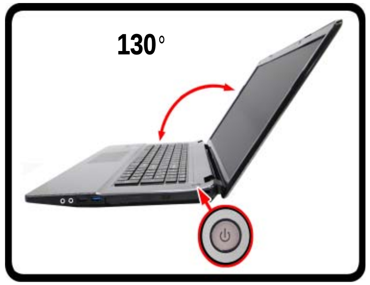


Figure 1
Opening the Lid/LCD/ Computer with AC/DC Adapter Plugged-In

Shut Down

Note that you should always shut your computer down by clicking **Settings** in the **Charms Bar** (use the **Windows Logo Key** + **C** key combination to access the Charms Bar) and choosing **Shut down** from the **Power** menu.

This will help prevent hard disk or system problems.

Contents

Preface

Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the ***W670SZQ*** series notebook computer. Information about operating the computer (e.g. getting started, and the *Setup* utility) is in the *User's Manual*. Information about drivers (e.g. VGA & audio) is also found in the *User's Manual*. The manual is shipped with the computer.

Operating systems (e.g. *Windows 8*, etc.) have their own manuals as do application softwares (e.g. word processing and database programs). If you have questions about those programs, you should consult those manuals.

The ***W670SZQ*** series notebook is designed to be upgradeable. See ***Disassembly on page 2 - 1*** for a detailed description of the upgrade procedures for each specific component. Please take note of the warning and safety information indicated by the "🔔" symbol.

The balance of this chapter reviews the computer's technical specifications and features.

Specifications

Latest Specification Information

The specifications listed here are correct at the time of sending them to the press. Certain items (particularly processor types/speeds) may be changed, delayed or updated due to the manufacturer's release schedule. Check with your service center for more details.

CPU

The CPU is not a user serviceable part. Accessing the CPU in any way may violate your warranty.

Processor Options

Intel® Core™ i7 Processor

i7-4900MQ (2.80GHz)
8MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 47W

i7-4800MQ (2.7GHz), i7-4700MQ (2.4GHz)
6MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 47W

i7-4702MQ (2.80GHz)
6MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 37W

i7-4600M (2.90GHz)
4MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 37W

Intel® Core™ i5 Processor

i5-4330M (2.80GHz), i5-4300M (2.60GHz), i5-4200M (2.50GHz)
3MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 37W

Intel® Core™ i3 Processor

i3-4100M (2.50GHz), i3-4000M (2.40GHz)
3MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 37W

Core Logic

Intel® HM86 Chipset

BIOS

48Mb SPI Flash ROM

AMI BIOS

Memory

Two 204 Pin SO-DIMM Sockets Supporting **DDR3L 1600MHz** Memory

Memory Expandable up to 16GB

(The real memory operating frequency depends on the FSB of the processor.)

Storage

One Changeable 2.5" 9.5mm/7mm (h) SATA HDD

(**Factory Option**) One 12.7mm(h) Optical Device Type Drive (Super Multi Drive/Blu-Ray Combo Drive/Blu-Ray Writer Drive)

(**Factory Option**) 9.5mm 2nd HDD caddy

(**Factory Option**) One mSATA Solid State Drive (SSD)

LCD

17.3" (43.94cm) HD+ / FHD

Audio

High Definition Audio Compliant Interface

2 * Built-In Speakers

Built-In Microphone

Sound Blaster™ Cinema

Security

Security (Kensington® Type) Lock Slot

BIOS Password

Video Adapter

Intel® Integrated GPU and NVIDIA® Discrete GPU

Supports NVIDIA® Optimus Technology

Intel Integrated GPU

Intel® HD Graphics 4600

Dynamic Frequency (Intel Dynamic Video Memory Technology for up to **1.7GB**)

Microsoft DirectX®11 Compatible

Keyboard

Full-size "WinKey" keyboard (with numeric keypad)
or
Illuminated Full-size "WinKey" keyboard (with numeric keypad)

Pointing Device

Built-in Touchpad

Mini Card Slots

Slot 1 for **WLAN** Module or **WLAN and Bluetooth** Combo Module

Slot 2 for mSATA **SSD**

Interface

One USB 2.0 Port

Two USB 3.0 Ports

One eSATA Port (USB 3.0 Combo)

One HDMI-Out Port

One External Monitor Port

One Headphone-Out Jack

One Microphone-In Jack

One RJ-45 LAN Jack

One DC-in Jack

Communication

Built-In Gigabit Ethernet LAN

2.0M HD PC Camera Module

<u>WLAN/ Bluetooth Half Mini-Card Modules:</u>

(**Factory Option**) Intel® Wireless-AC 7260 Wireless LAN (**802.11a/c**) + Bluetooth 4.0

(**Factory Option**) Intel® Wireless-N 7260 Wireless LAN (**802.11a/g/n**) + Bluetooth 4.0

(**Factory Option**) Intel® Wireless-N 7260 Wireless LAN (**802.11b/g/n**)+ Bluetooth 4.0

(**Factory Option**) Third-Party Wireless LAN (**802.11b/g/n**)

(**Factory Option**) Third-Party Wireless LAN (**802.11a/c**) + Bluetooth 4.0

(**Factory Option**) Third-Party Wireless LAN (**802.11b/g/n**) + Bluetooth 4.0

Card Reader

Embedded Multi-In-1 Card Reader

- MMC (MultiMedia Card) / RS MMC
- SD (Secure Digital) / Mini SD / SDHC/ SDXC
- MS (Memory Stick) / MS Pro / MS Duo

Environmental Spec

Temperature

Operating: 5°C - 35°C

Non-Operating: -20°C - 60°C

Relative Humidity

Operating: 20% - 80%

Non-Operating: 10% - 90%

Power

(**Factory Option**) 6 Cell Smart Lithium-Ion Battery Pack, 48.84WH

(**Factory Option**) 6 Cell Smart Lithium-Ion Battery Pack, 62.16WH

Full Range AC/DC Adapter

AC Input: 100 - 240V, 50 - 60Hz

DC Output: 19.5V, 6.15A (**120W**)

Dimensions & Weight

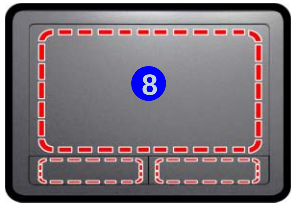
413mm (w) * 272.8mm (d) * 36.4mm (h)

3.1kg (with ODD and 62.16WH Battery)

External Locator - Top View with LCD Panel Open

Figure 1
Top View

1. PC Camera
2. Built-In Microphone
3. *PC Camera LED
   **When the PC camera is in use, the LED will be illuminated in red.*
4. LCD
5. Power Button
6. LED Indicator
7. Keyboard
8. Touchpad & Buttons



Note that the Touchpad and Buttons valid operational area is that indicated within the red dotted lines.



External Locator - Front & Right Side Views

FRONT VIEW



Figure 2
Front View

1. LED Indicator
2. Multi-in-1 Card Reader

RIGHT SIDE VIEW



Figure 3
Right Side View

1. Microphone-In Jack
2. Headphone-Out Jack
3. USB Ports
4. Optical Device Drive Bay
5. Emergency Eject Hole
6. Security Lock Slot

External Locator - Left Side & Rear View

Figure 4
Left Side View

1. DC-In Jack
2. Vent
3. External Monitor Port
4. RJ-45 LAN Jack
5. Combined eSATA/ USB 3.0 Port
6. HDMI-Out Port
7. USB 3.0 Ports

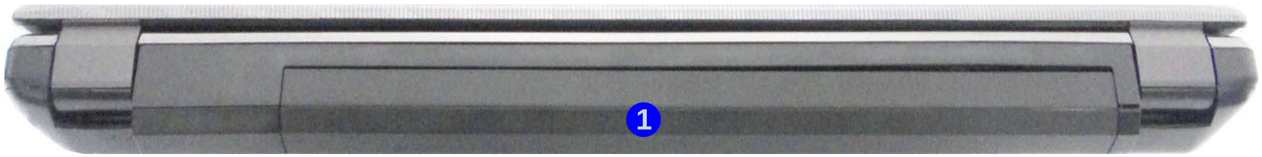
LEFT SIDE VIEW



Figure 5
Rear View

1. Battery

REAR VIEW



External Locator - Bottom View

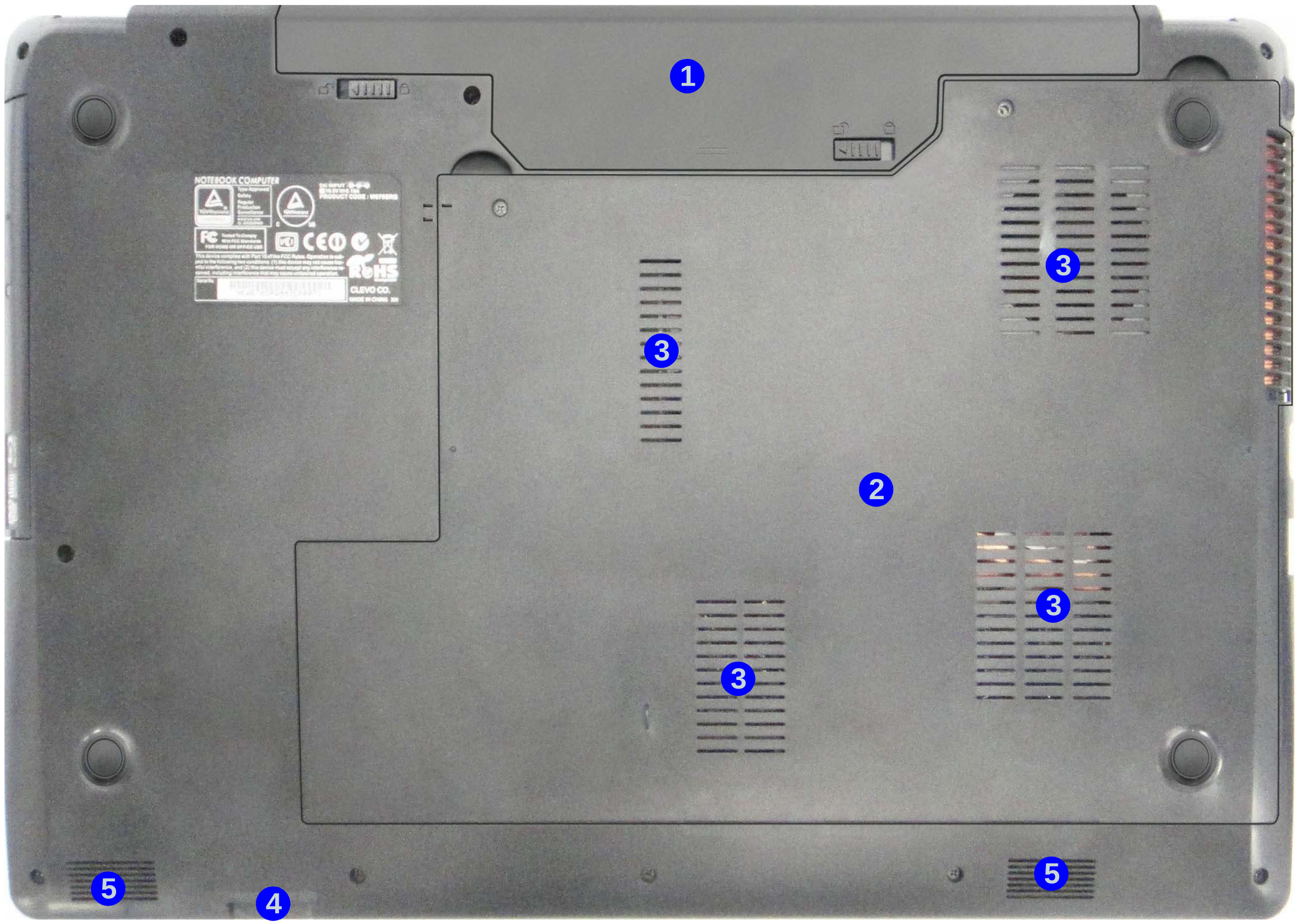


Figure 6
Bottom View

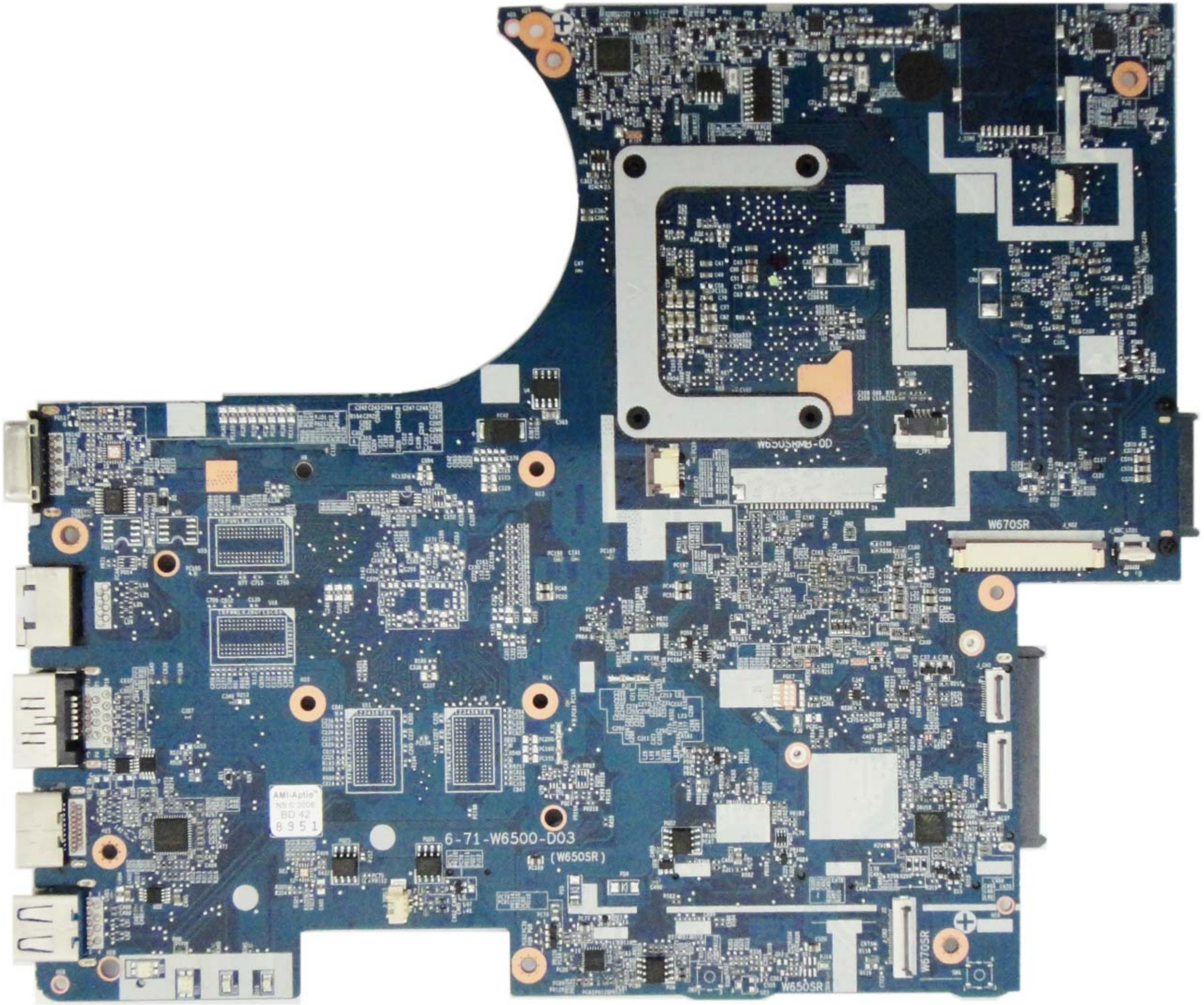
1. Battery
2. Component Bay Cover
3. Vent
4. Multi-in-1 Card Reader
5. Speakers

Overheating

To prevent your computer from overheating, make sure nothing blocks any vent while the computer is in use.

Mainboard Overview - Top (Key Parts)

Figure 7
Mainboard Top Key Parts



Mainboard Overview - Bottom (Key Parts)

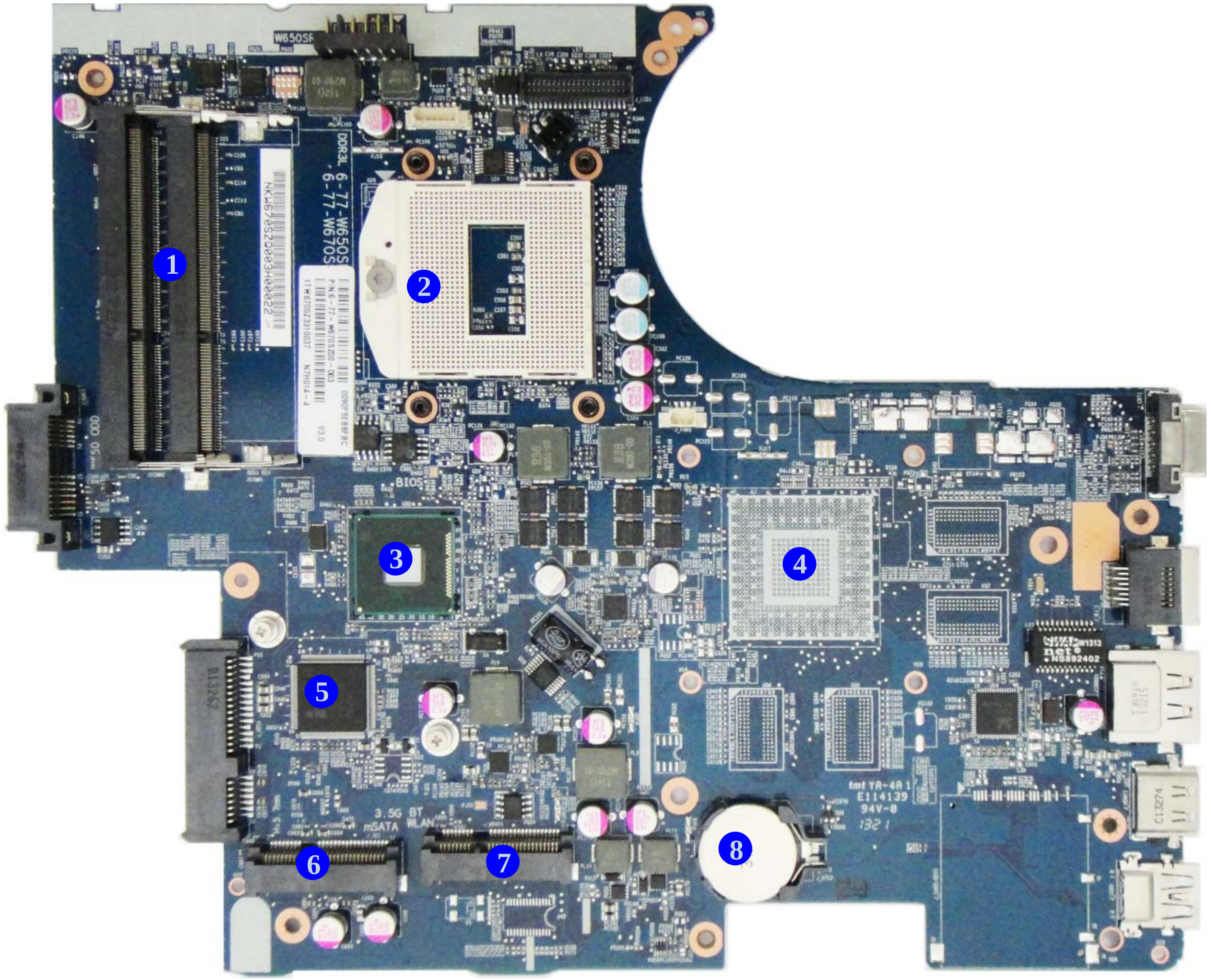


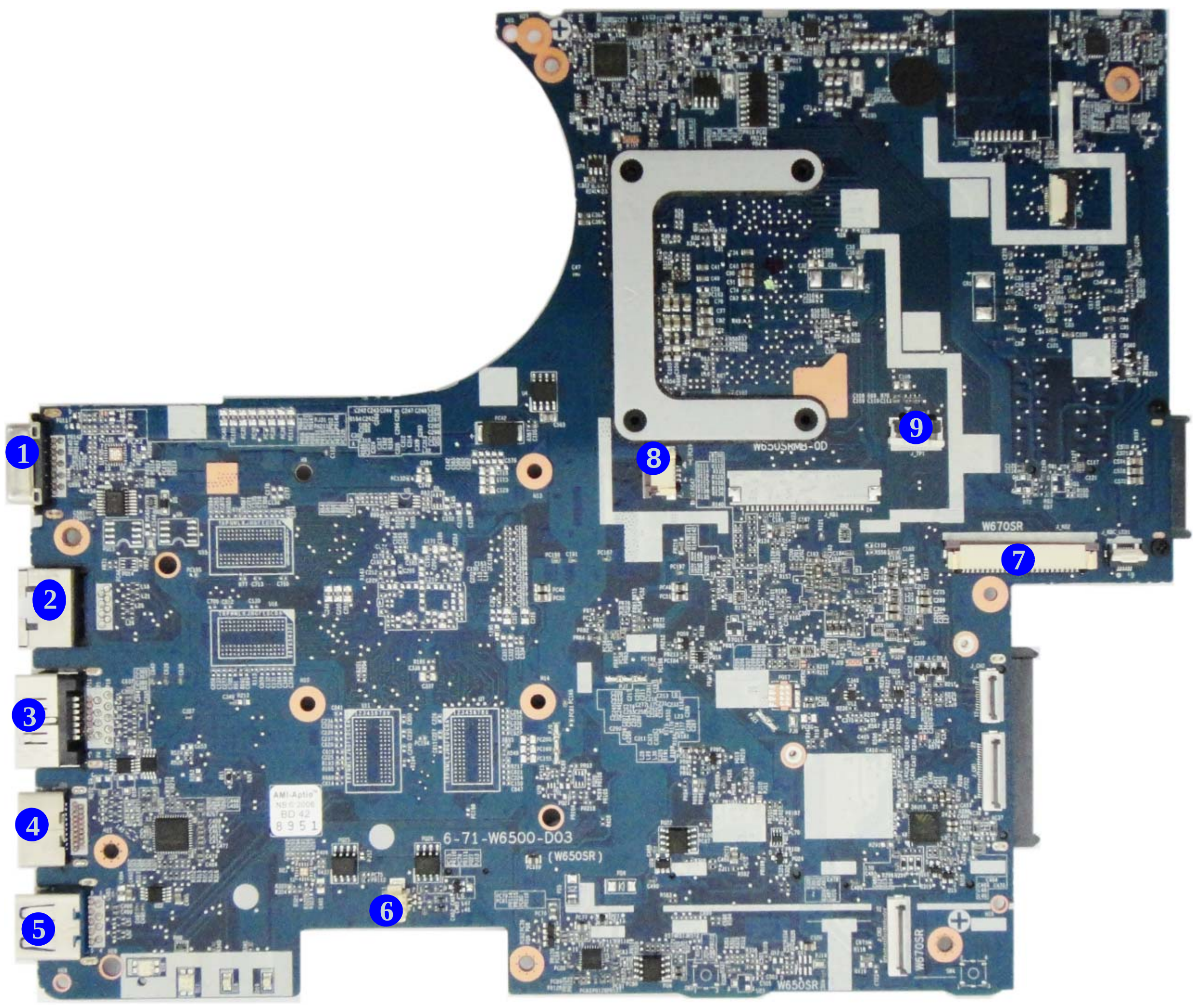
Figure 8
Mainboard Bottom Key Parts

1. Memory Slots DDR3 SO-DIMM
2. CPU Socket (no CPU installed)
3. Northbridge Platform Controller Hub
4. VGA Chip
5. KBC-ITE IT8518
6. Mini-Card Connector (mSATA Module)
7. Mini-Card Connector (WLAN Module)
8. CMOS Battery

Mainboard Overview - Top (Connectors)

Figure 9
Mainboard Top Connectors

1. External Monitor Port
2. RJ-45 LAN Jack
3. Combo eSATA/ USB Port 3.0
4. HDMI-Out Port
5. USB Port 3.0 Connector
6. Speaker Cable Connector
7. Keyboard Cable Connector
8. Touchpad Cable Connector
9. Touchpad Cable Connector



Mainboard Overview - Bottom (Connectors)

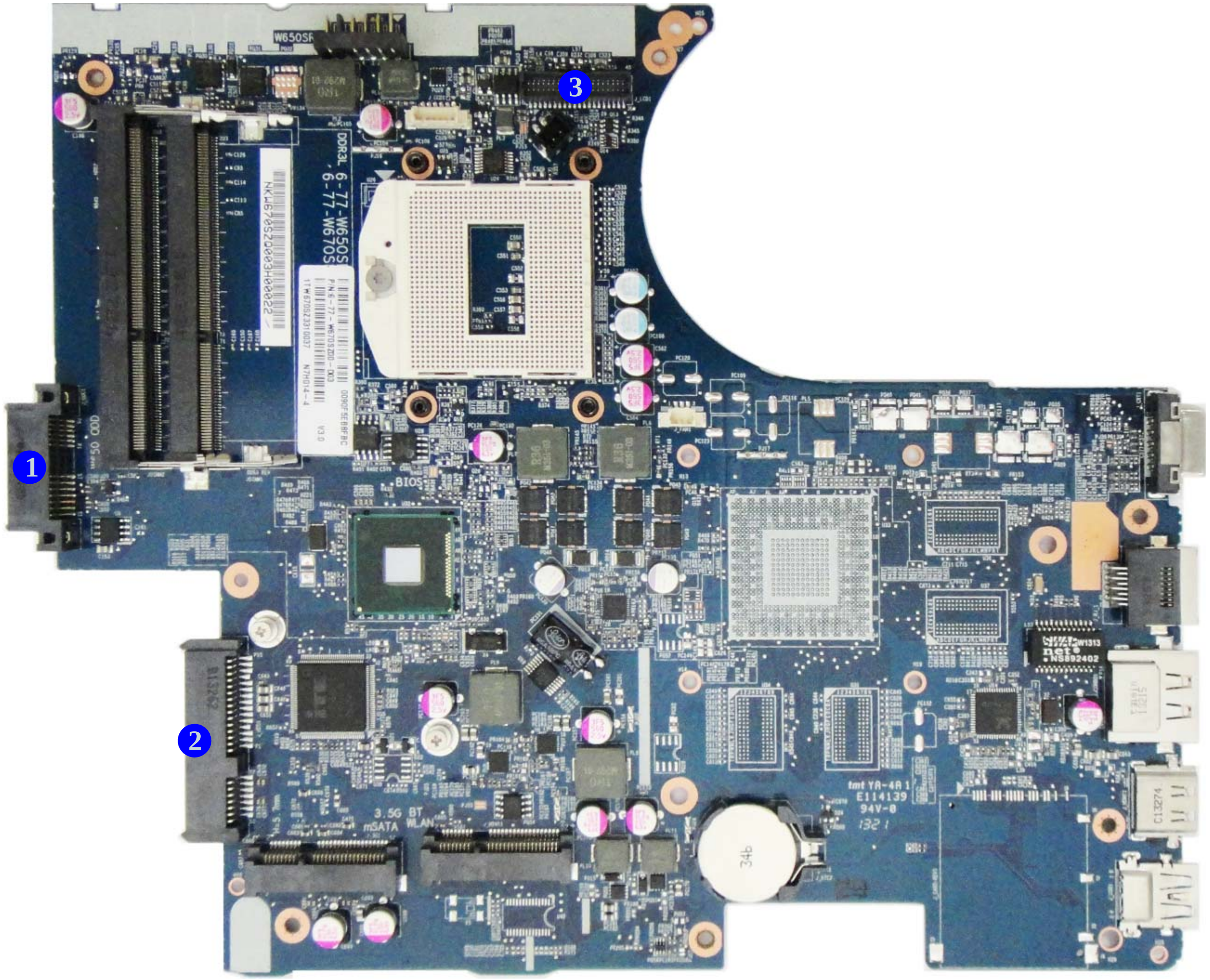


Figure 10
Mainboard Bottom Connectors

1. ODD Connector
2. HDD Connector
3. LCD Cable Connector

Chapter 2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling the ***W670SZQ*** series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

We suggest you completely review any procedure before you take the computer apart.

Procedures such as upgrading/replacing the RAM, optical device and hard disk are included in the User's Manual but are repeated here for your convenience.

To make the disassembly process easier each section may have a box in the page margin. Information contained under the figure # will give a synopsis of the sequence of procedures involved in the disassembly procedure. A box with a lists the relevant parts you will have after the disassembly process is complete. **Note**: The parts listed will be for the disassembly procedure listed ONLY, and not any previous disassembly step(s) required. Refer to the part list for the previous disassembly procedure. The amount of screws you should be left with will be listed here also.

A box with a will also provide any possible helpful information. A box with a contains warnings.

An example of these types of boxes are shown in the sidebar.

Information

Warning

NOTE: All disassembly procedures assume that the system is turned **OFF**, and disconnected from any power supply (the battery is removed too).

Maintenance Tools

The following tools are recommended when working on the notebook PC:

- M3 Philips-head screwdriver
- M2.5 Philips-head screwdriver (magnetized)
- M2 Philips-head screwdriver
- Small flat-head screwdriver
- Pair of needle-nose pliers
- Anti-static wrist-strap

Connections

Connections within the computer are one of four types:

Locking collar sockets for ribbon connectors	To release these connectors, use a small flat-head screwdriver to gently pry the locking collar away from its base. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Pressure sockets for multi-wire connectors	To release this connector type, grasp it at its head and gently rock it from side to side as you pull it out. Do not pull on the wires themselves. When replacing the connection, do not try to force it. The socket only fits one way.
Pressure sockets for ribbon connectors	To release these connectors, use a small pair of needle-nose pliers to gently lift the connector away from its socket. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Board-to-board or multi-pin sockets	To separate the boards, gently rock them from side to side as you pull them apart. If the connection is very tight, use a small flat-head screwdriver - use just enough force to start.

Maintenance Precautions

The following precautions are a reminder. To avoid personal injury or damage to the computer while performing a removal and/or replacement job, take the following precautions:

1. **Don't drop it**. Perform your repairs and/or upgrades on a stable surface. If the computer falls, the case and other components could be damaged.
2. **Don't overheat it**. Note the proximity of any heating elements. Keep the computer out of direct sunlight.
3. **Avoid interference**. Note the proximity of any high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage components and/or data. You should also monitor the position of magnetized tools (i.e. screwdrivers).
4. **Keep it dry**. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.
5. **Be careful with power**. Avoid accidental shocks, discharges or explosions.
   - Before removing or servicing any part from the computer, turn the computer off and detach any power supplies.
   - When you want to unplug the power cord or any cable/wire, be sure to disconnect it by the plug head. Do not pull on the wire.
6. **Peripherals** – Turn off and detach any peripherals.
7. **Beware of static discharge**. ICs, such as the CPU and main support chips, are vulnerable to static electricity. Before handling any part in the computer, discharge any static electricity inside the computer. When handling a printed circuit board, do not use gloves or other materials which allow static electricity buildup. We suggest that you use an anti-static wrist strap instead.
8. **Beware of corrosion**. As you perform your job, avoid touching any connector leads. Even the cleanest hands produce oils which can attract corrosive elements.
9. **Keep your work environment clean**. Tobacco smoke, dust or other air-born particulate matter is often attracted to charged surfaces, reducing performance.
10. **Keep track of the components**. When removing or replacing any part, be careful not to leave small parts, such as screws, loose inside the computer.

Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines and power cord). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

Cleaning

Do not apply cleaner directly to the computer, use a soft clean cloth.
Do not use volatile (petroleum distillates) or abrasive cleaners on any part of the computer.

Disassembly Steps

The following table lists the disassembly steps, and on which page to find the related information. **PLEASE PERFORM THE DISASSEMBLY STEPS IN THE ORDER INDICATED.**

To remove the Battery:

1. Remove the battery *page 2 - 5*

To remove the Keyboard:

1. Remove the battery *page 2 - 5*
2. Remove the keyboard *page 2 - 6*

To remove the HDD:

1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 7*

To remove the Optical Device:

1. Remove the battery *page 2 - 5*
2. Remove the Optical device *page 2 - 10*

To remove the System Memory:

1. Remove the battery *page 2 - 5*
2. Remove the system memory *page 2 - 12*

To remove and install a Processor:

1. Remove the battery *page 2 - 5*
2. Remove the processor *page 2 - 14*
3. Install the processor *page 2 - 16*

To remove the Wireless LAN Module:

1. Remove the battery *page 2 - 5*
2. Remove the WLAN *page 2 - 18*

To remove the MSATA Module:

1. Remove the battery *page 2 - 5*
2. Remove the MSATA *page 2 - 19*

To remove the CCD Module:

1. Remove the battery *page 2 - 5*
2. Remove the CCD module *page 2 - 20*

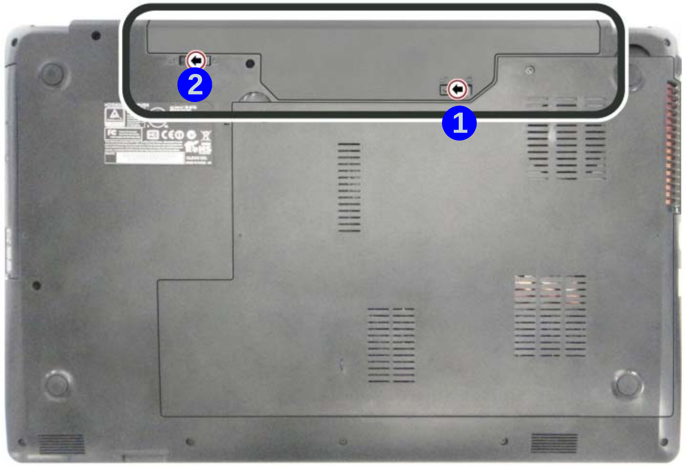
Removing the Battery

1. Turn the computer **off**, and turn it over.
2. Slide the latch 1 in the direction of the arrow (***Figure 1a***).
3. Slide the latch 2 in the direction of the arrow, and hold it in place (***Figure 1a***).
4. Slide the battery 3 in the direction of the arrow 4 (***Figure 1b***).

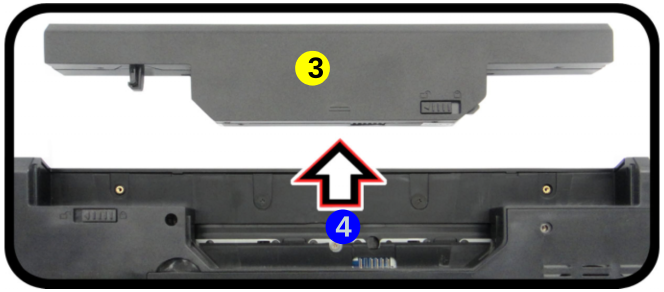
Figure 1
Battery Removal

a. Slide the latch and hold it in place.
b. Slide the battery in the direction of the arrow.

a.



b.



3. Battery

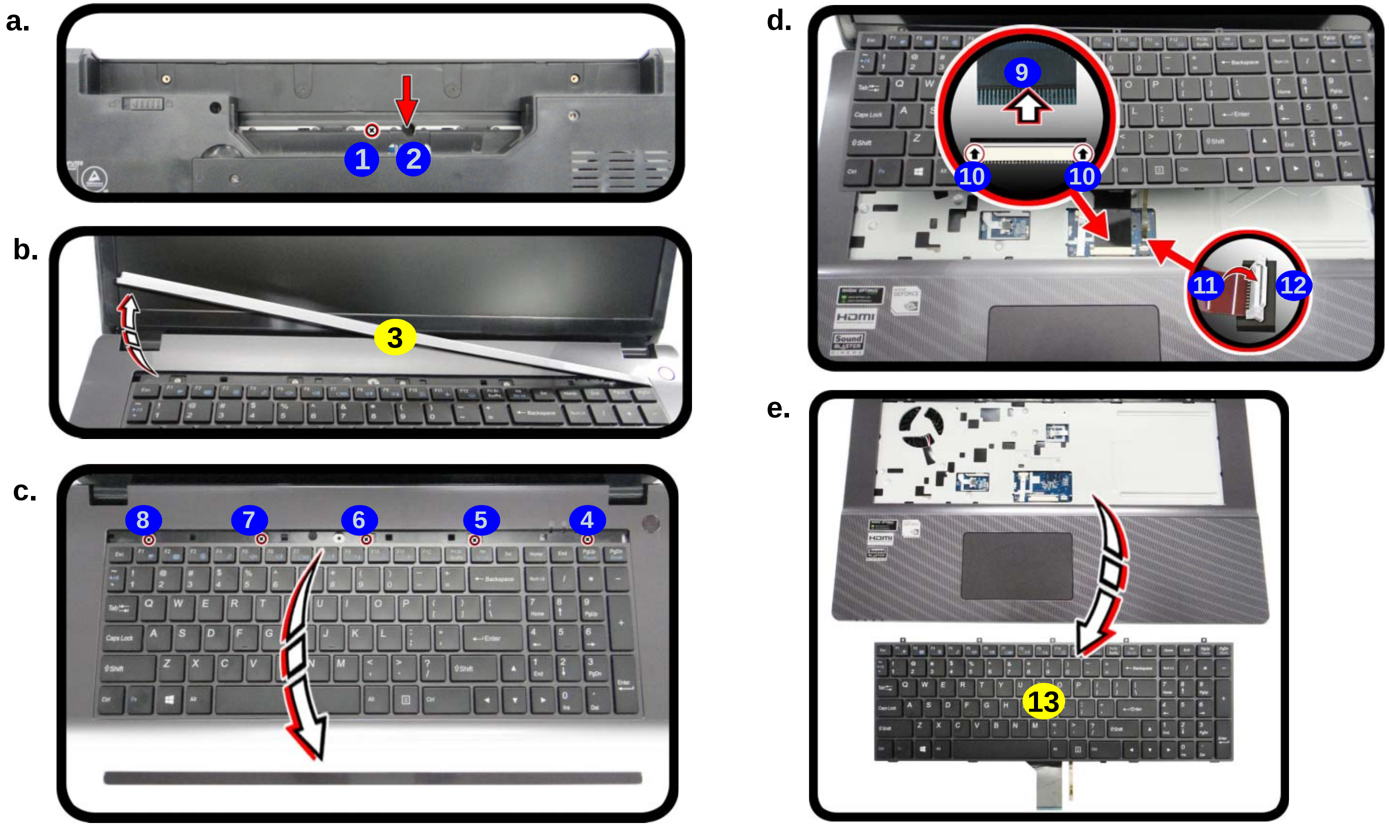
2.Disassembly

Removing the Keyboard

Figure 2
Keyboard Removal

a. Remove screw and press at point 2 to unsnap the center cover module.
b. Remove the center cover module.
c. Remove the screws.
d. Carefully lift the keyboard up and disconnect the ribbon cables from its locking collar.
e. Remove the keyboard.

1. Turn **off** the computer, turn it over, remove the battery (***page 2 - 5***).
2. Remove screw 1 and carefully press at point 2, from the bottom of the computer to unsnap the center cover module (use the eject pin tool to do this - ***Figure 2a***)
3. Turn the computer over, remove the unsnap center cover module 3 from the computer (***Figure 2b***).
4. Remove screws 4 - 8 from the keyboard (***Figure 2c***).
5. Lift the keyboard up, being careful not to bend the keyboard ribbon cable 9. Disconnect the keyboard ribbon cable from the locking collar socket 10 and the keyboard LED cable 11 from its locking collar 12 (***Figure 2d***).
6. Carefully lift the keyboard 13 off the computer (***Figure 2e***).



3. Center Cover Module
13. Keyboard

- 6 Screws

Removing the Hard Disk Drive

The hard disk drive can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 9.5mm or 7mm (h). Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in **Chapter 4 of the User's Manual**) when setting up a new hard disk.

Hard Disk Upgrade Process

1. Turn **off** the computer, and remove the battery (*page 2 - 5*).
2. Locate the component bay cover and remove screws 1 - 2 (*Figure 3a*).
3. Lift the component bay cover 3 off the computer case by applying pressure at points 4 & 5; if you have problems using a finger to do this, then use a non-abrasive, non-sharp object (e.g. a coin) to lift the cover up before removal).

a.

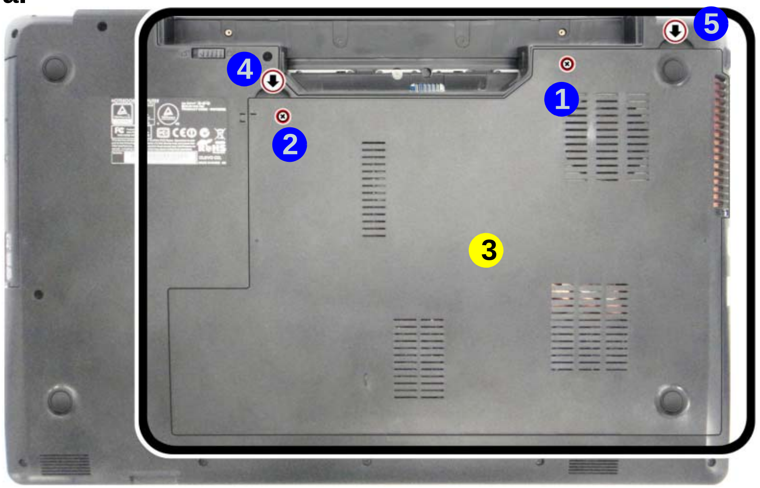


Figure 3
HDD Assembly Removal

a. Remove the screws. Lift the component bay cover off the computer.

3. Component Bay Cover

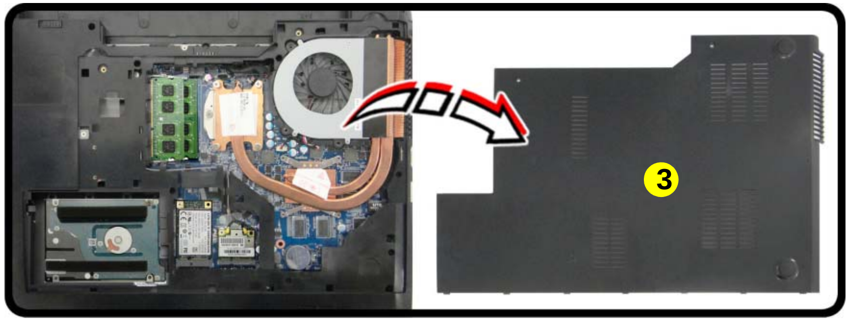
- 2 Screws

Figure 4
HDD Assembly Removal (cont'd.)

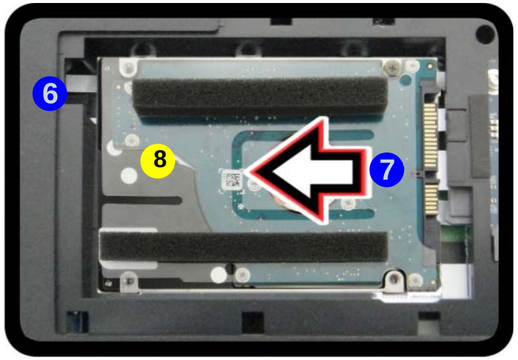
c. Remove the bay cover.
d. Lift the rubber and slide the HDD assembly in the direction of the arrow to lift the HDD assembly out.
e. Remove the screws and adhesive cover.

4. Remove the component bay cover 3 (***Figure 4c***).
5. Lift the HDD sponge up at point 6 and grip the tab to slide the hard disk assembly in the direction of arrow 7 to lift the hard disk assembly 8 out (***Figure 4d***).
6. Remove the screws 9 - 10 and the adhesive cover 11 from the hard disk 12 (***Figure 4e***).
7. Reverse the process to install a new hard disk (do not forget to replace the screws and bay cover).

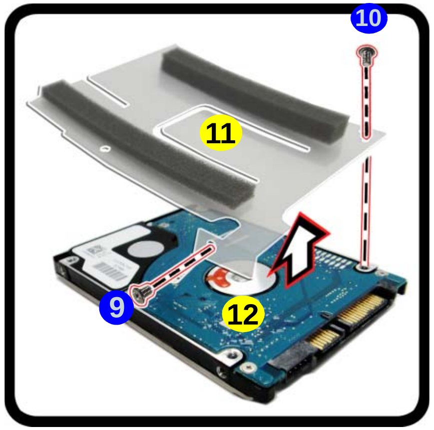
c.



d.



e.



HDD System Warning

New HDD's are blank. Before you begin make sure:

You have backed up any data you want to keep from your old HDD.

You have all the CD-ROMs and FDDs required to install your operating system and programs.

If you have access to the internet, download the latest application and hardware driver updates for the operating system you plan to install. Copy these to a removable medium.

3. Component Bay Cover
6. HDD Assembly
9. Adhesive Cover
10. HDD

- 2 Screws

Hard Disk Size Note (Foam Rubber Insert)

Note that the hard disks pictured on the following pages are all 9.5mm(H) hard disk drives. In some cases 7mm(H) hard disk drives will be installed. For more information contact your distributor/supplier, and bear in mind your warranty terms.

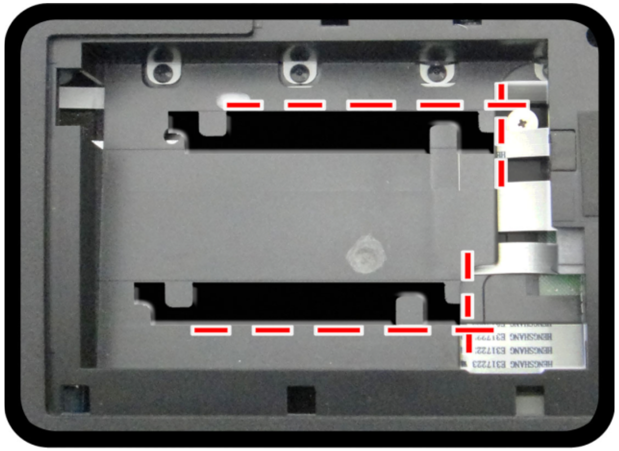


Figure 5
Foam Rubber Insert for 7mm(H) HDDs

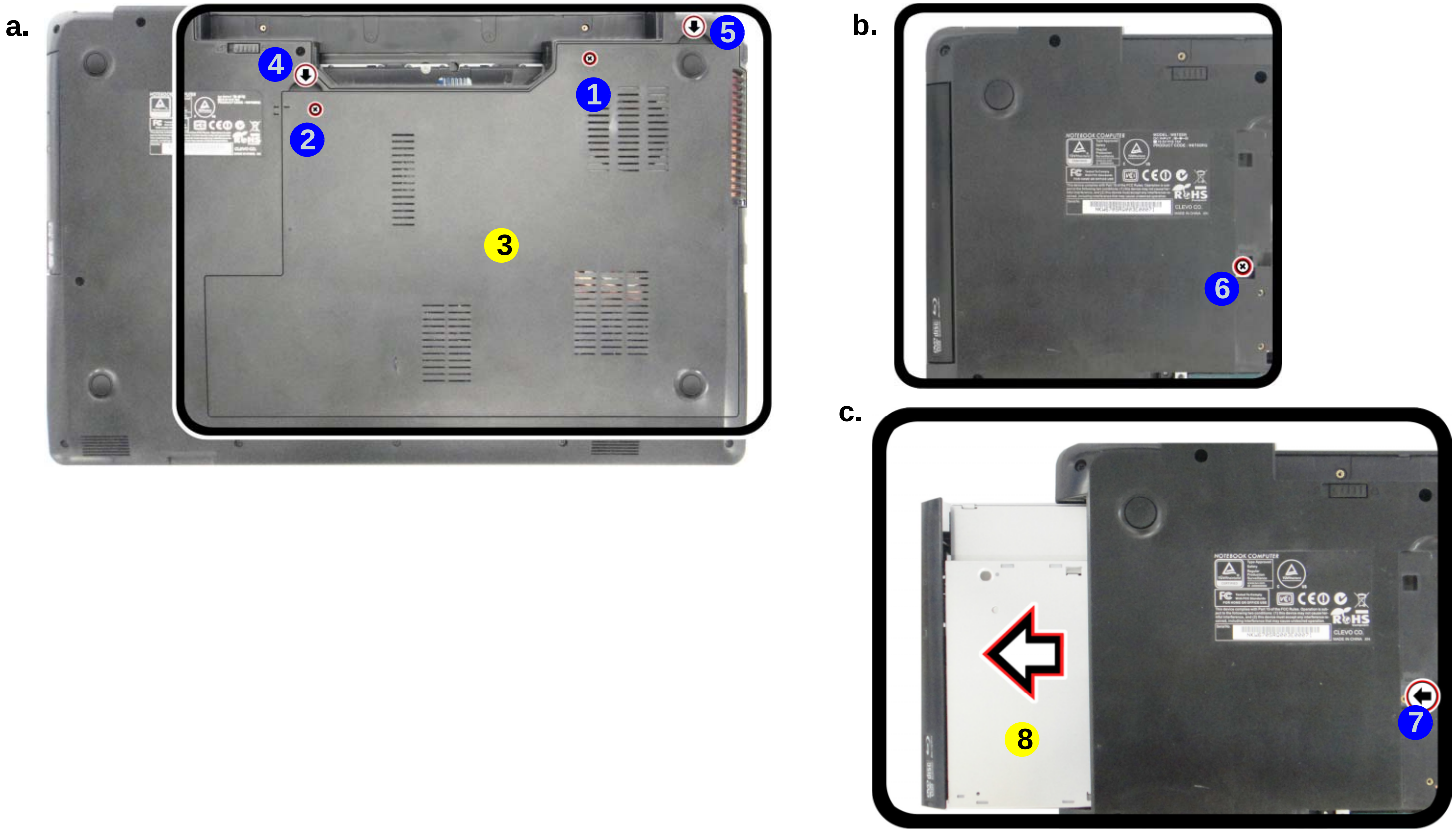
- If you are replacing a 9.5mm(H) HDD with a 7mm(H) HDD then insert the foam rubber insert (as shown above).
- If you are replacing a 7mm(H) HDD with a 9.5mm(H) HDD then remove the foam rubber insert.

Removing the Optical (CD/DVD) Device

1. Turn **off** the computer, and remove the battery (***page 2 - 5***).
2. Locate the component bay cover and remove screws 1 - 2 (***Figure 6a***).
3. Lift the component bay cover 3 off the computer case by applying pressure at points 4 & 5; if you have problems using a finger to do this, then use a non-abrasive, non-sharp object (e.g. a coin) to lift the cover up before removal).
4. Remove the screw at point 6 (***Figure 6b***).
5. Use a screwdriver to carefully push out the optical device 8 at point 7 (***Figure 6c***).

Figure 6
Optical Device Removal

a. Remove the screws. Lift the component bay cover off the computer.
b. Remove the screw at point 6.
c. Use a screwdriver to carefully push out the optical device at point 7.



3. Component Bay Cover
8. Optical Device

- 3 Screws

6. Carefully pry the bezel **10** off the optical device at point **9** (***Figure 7e***).
7. Separate the bezel **10** and the optical device.
8. Reverse the process to attach the front bezel **10** with the new optical device at point **11** (***Figure 7g***).
9. Insert the new device and carefully slide it into the computer (the device only fits one way. DO NOT FORCE IT; The screw holes should line up).
10. Reinsert the component bay cover by placing it on the bottom case assembly, and aligning the pins at the bottom of the cover with the slots in the case to ensure a proper fit. Press down on the cover to make sure it fits tightly.
11. Replace the screws and battery.
12. Restart the computer to allow it to automatically detect the new device.

Figure 7
Optical Device Removal (cont'd.)

e. Pry the bezel off the optical device.
f. Separate the bezel and optical device
g. Install the front bezel.
h. Replace the component bay cover and screws.

e.



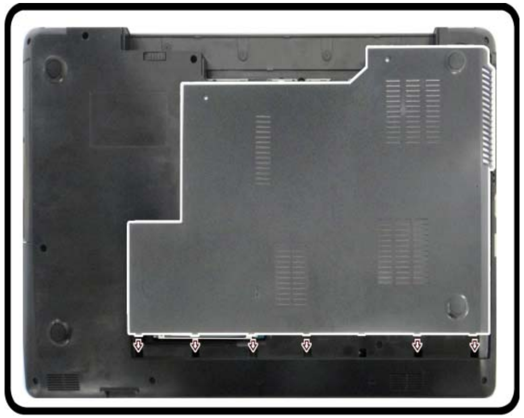
g.



f.



h.



10. Bezel

Removing the System Memory (RAM)

The computer has two memory sockets for 204 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting DDR3L Up to 1600 MHz. The main memory can be expanded up to 16GB. The SO-DIMM modules supported are 1024MB and 2048MB **DDRIII** Modules. The total memory size is automatically detected by the POST routine once you turn on your computer.

Memory Upgrade Process

1. Turn **off** the computer, turn it over, and remove the battery (*page 2 - 5*).
2. Remove screws 1 - 2 from the component bay cover (*Figure 8a*).
3. Lift the component bay cover 3 off the computer case by applying pressure at points 4 & 5; if you have problems using a finger to do this, then use a non-abrasive, non-sharp object (e.g. a coin) to lift the cover up before removal).
4. The RAM modules will be visible at point 6 on the mainboard (*Figure 8b*).

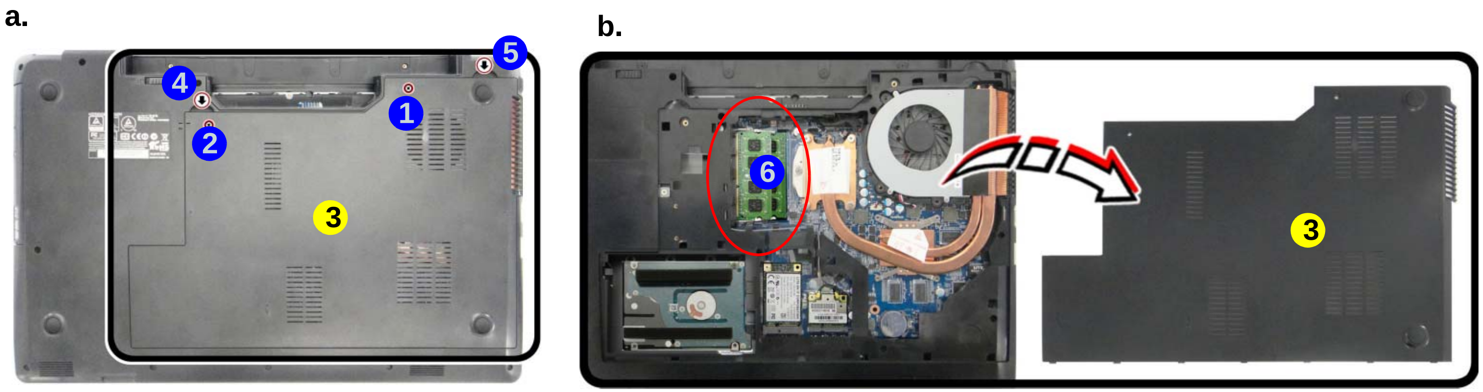


Figure 8
RAM Module Removal

a. Remove the screws from the component bay cover.
b. Remove the component bay cover. The RAM modules will be visible at point 6 on the mainboard.

Contact Warning

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

3. Component Bay Cover

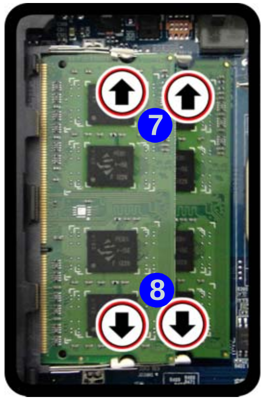
- 2 Screws

5. Gently pull the two release latches (7 & 8) on the sides of the memory socket in the direction indicated by the arrows (*Figure 9c*).
6. The RAM module 9 will pop-up (*Figure 9d*), and you can then remove it.
7. Pull the latches to release the second module if necessary.
8. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
9. The module will only fit one way as defined by its pin alignment. Make sure the module is seated as far into the slot as it will go. DO NOT FORCE IT; it should fit without much pressure.
10. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
11. Replace the component bay cover and the screws (see *page 2 - 12*).
12. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

Figure 9
RAM Module Removal (cont'd)

c. Pull the release latches.
d. Remove the module.

c.



d.



Single Memory Module Installation

If your computer has a single memory module, then insert the module into the **Channel 0 (JDIMM1)** socket. In this case this is the **lower memory socket** (the socket closest to the mainboard).

Contact Warning

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

9. RAM Module

Figure 10
Processor Removal

a. Locate the CPU heat sink.
b. Remove the screws.
c. Carefully remove the heat sink unit.

Removing and Installing a Processor

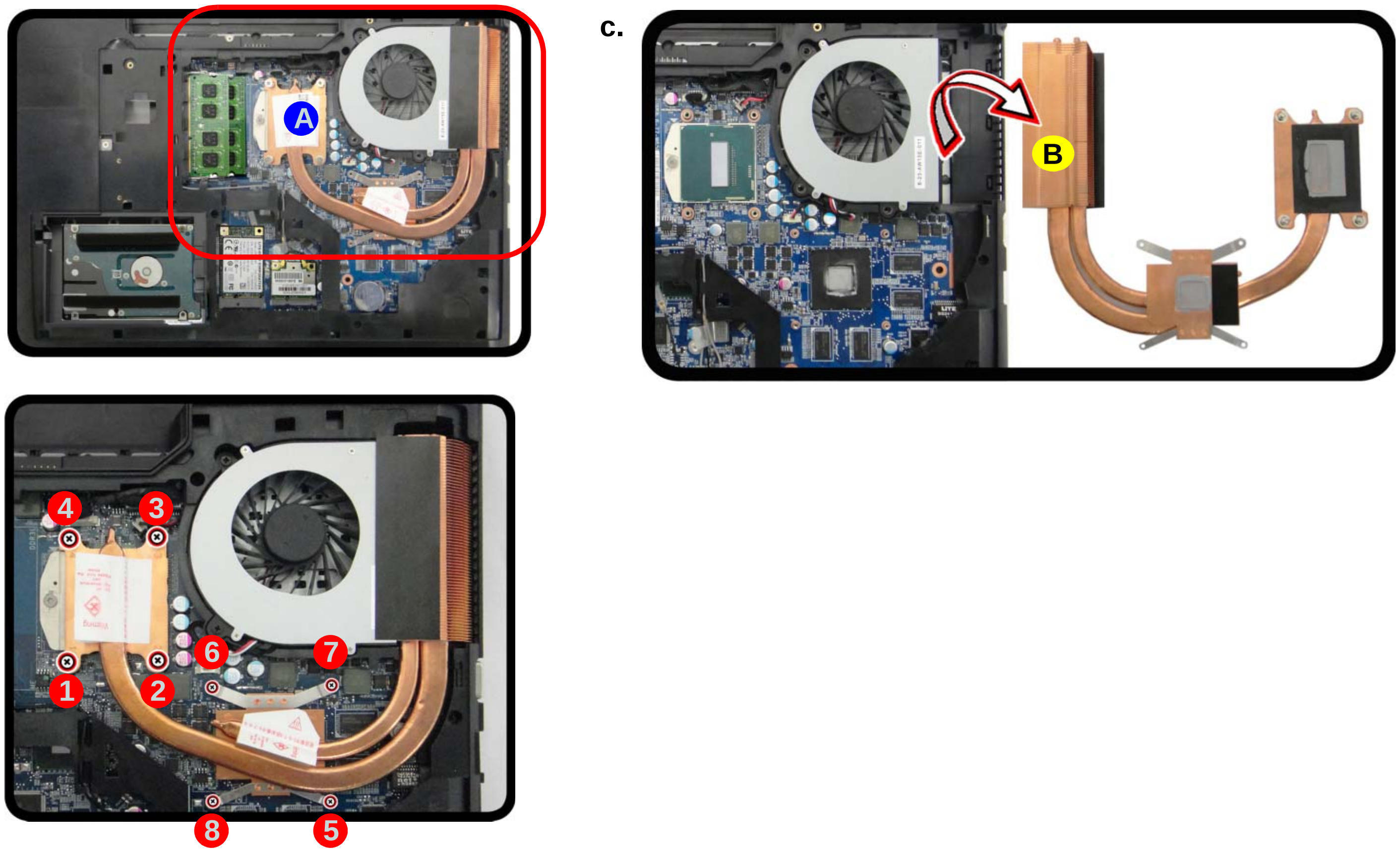
Processor Removal Procedure

1. Turn **off** the computer, turn it over, remove the battery (***page 2 - 5***) and the component bay cover (***page 2 - 7***).
2. The CPU heat sink will be visible at point A (***Figure 10a***).
3. Loosen the CPU heat sink screws in the order 8, 7, 6, 5, 4, 3, 2 & 1 (the reverse order as indicated on the label (***Figure 10b***).
4. Carefully (it may be hot) remove the heat sink unit B off the computer (***Figure 10c***).

a.

b.

c.



B. Heat Sink

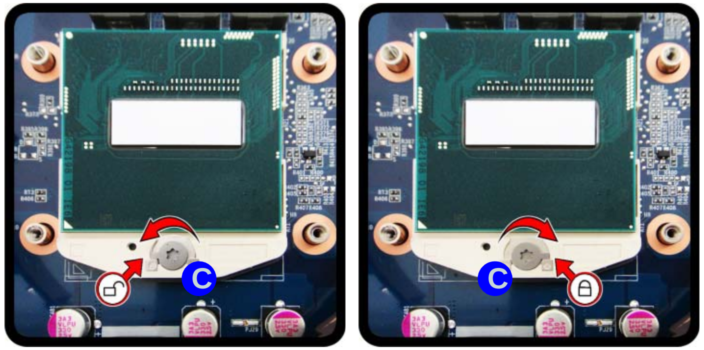
- 8 Screws

5. Turn the release latch C towards the unlock symbol to release the CPU (***Figure 11f***).
6. Carefully (it may be hot) lift the CPU D up and out of the socket (***Figure 11g***).
7. Reverse the process to install a new CPU.
8. When re-inserting the CPU, pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!)

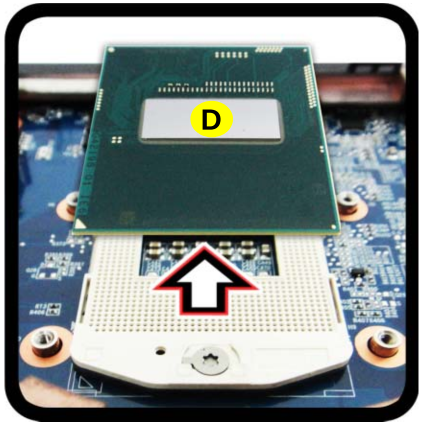
Figure 11
Processor Removal (cont'd)

d. Turn the release latch to unlock the CPU.
e. Lift the CPU out of the socket.

d.



e.



Caution

The heat sink, and CPU area in general, contains parts which are subject to high temperatures. Allow the area time to cool before removing these parts.

D. CPU

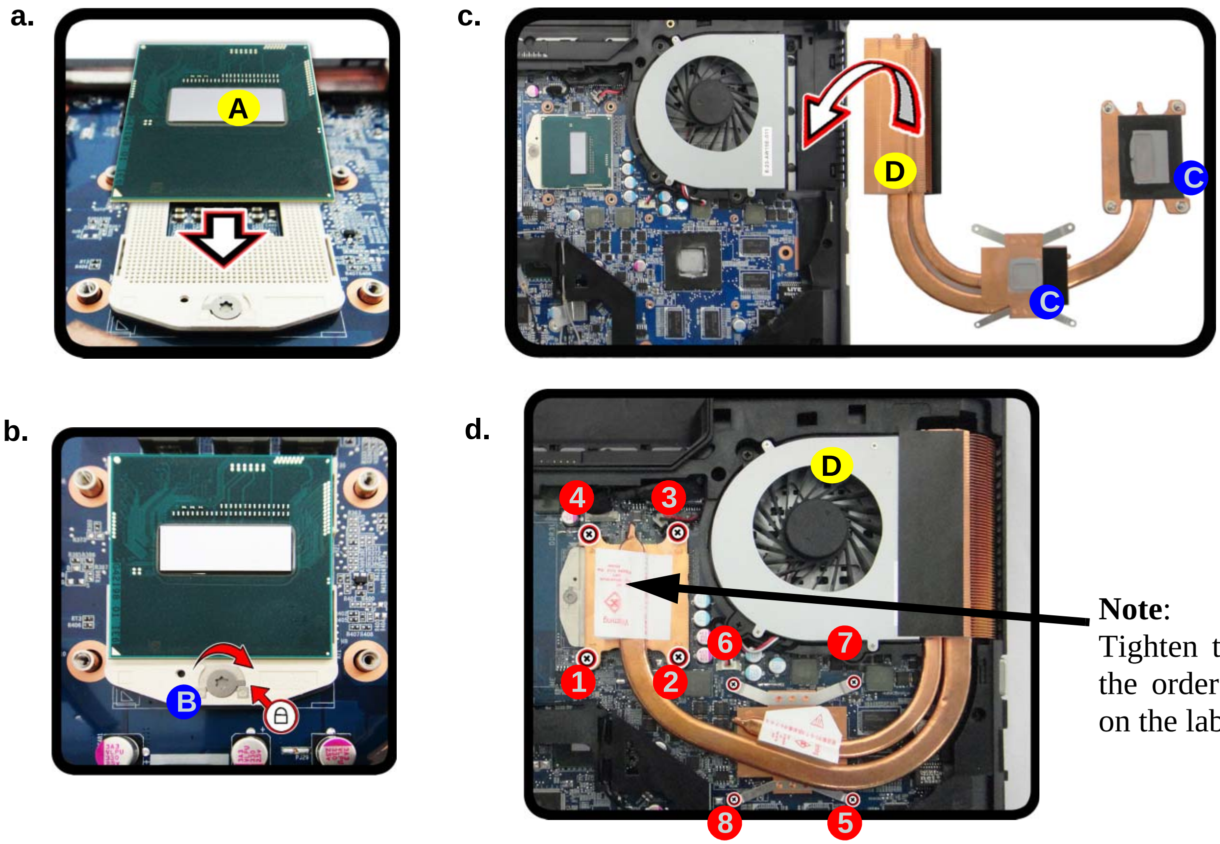
2.Disassembly

Figure 12
Processor Installation

a. Insert the CPU.
b. Turn the release latch towards the lock symbol.
c. Insert the heat sink.
d. Tighten the screws.

Processor Installation Procedure

1. Insert the CPU **A** (***Figure 12a***), and pay careful attention to the pin alignment; it will fit only one way (DO NOT FORCE IT!), and turn the release latch **B** towards the lock symbol (***Figure 12b***).
2. **Remove the sticker C** (***Figure 12c***) from the heat sink unit (if it is a new unit).
3. Insert the heat sink **D** as indicated in ***Figure 12c***.
4. Tighten the CPU heat sink screws in the order **1**, **2**, **3**, **4**, **5**, **6**, **7** & **8** (the order as indicated on the label and ***Figure 12d***).
5. Replace the CPU fan, component bay cover and tighten the screws (***page 2 - 14***).



Note:
Tighten the screws in the order as indicated on the label.

A. CPU
D. Heat Sink

- 4 Screws

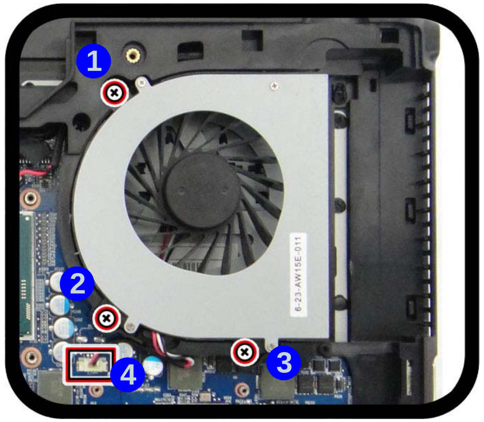
Removing the Fan Unit

1. Turn **off** the computer, turn it over, remove the battery (***page 2 - 5***), the component bay cover (***page 2 - 7***) and CPU (***page 2 - 14***).
2. Remove screws 1 - 3 and disconnect the cable 4 (***Figure 13a***).
3. Carefully lift the fan unit 5 off the computer (***Figure 13c***).
4. Reverse the process to install a new fan unit.
5. When re-inserting the fan unit, pay careful attention to its alignment.

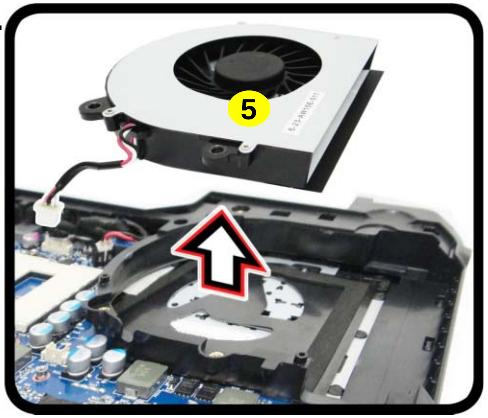
Figure 13
Fan Unit Removal

a. Remove the screws ansd disconnect the cable.
b. Carefully lift the fan unit.

a.



b.



5. Fan Unit

- 3 Screws

Figure 14
Wireless LAN Module Removal

a. Locate the WLAN.
b. Disconnect the cables and remove the screw.
c. The WLAN module will pop up.

Note: Make sure you reconnect the antenna cable to the “1 + 2” socket (*Figure 14b*).

5.Wireless LAN Module

- 1 Screw

Removing the Wireless LAN Module

1. Turn **off** the computer, turn it over, remove the battery (*page 2 - 5*) and the component bay cover (*page 2 - 7*).
2. The Wireless LAN module will be visible at point 1 on the mainboard (*Figure 14a*).
3. Carefully disconnect the cables 2 & 3, and then remove the screw 4 (*Figure 14b*)
4. The Wireless LAN module 5 (*Figure 14c*) will pop-up, and you can remove it from the computer.

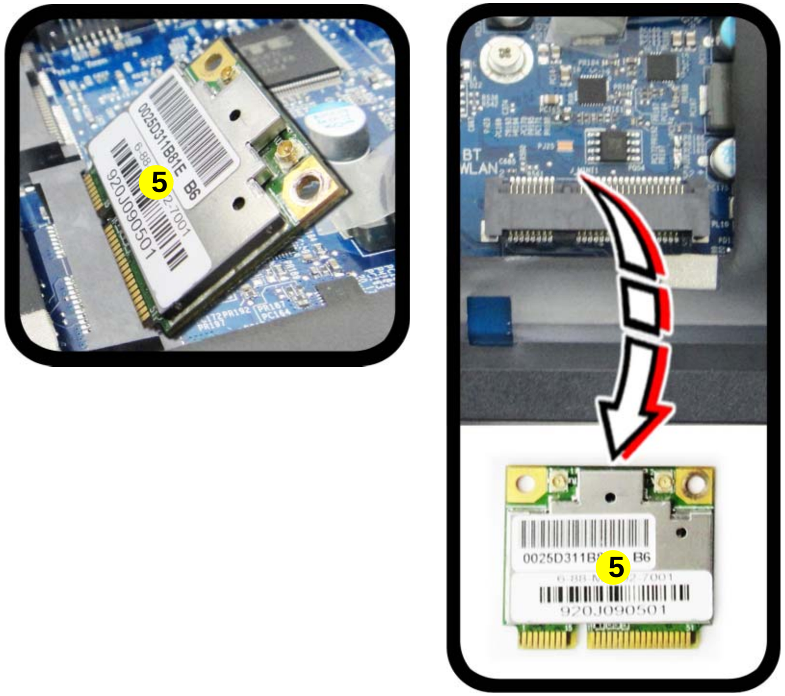
a.



b.



c.



Removing the MSATA Module

1. Turn **off** the computer, remove the battery (***page 2 - 14***), and component bay cover (***page 2 - 7***).
2. Locate the module, it is visible at point **1** (***Figure 15a***).
3. Carefully remove the screw **2** from the module (***Figure 15b***).
4. Lift the module **3** up and off the computer (***Figure 15c***).

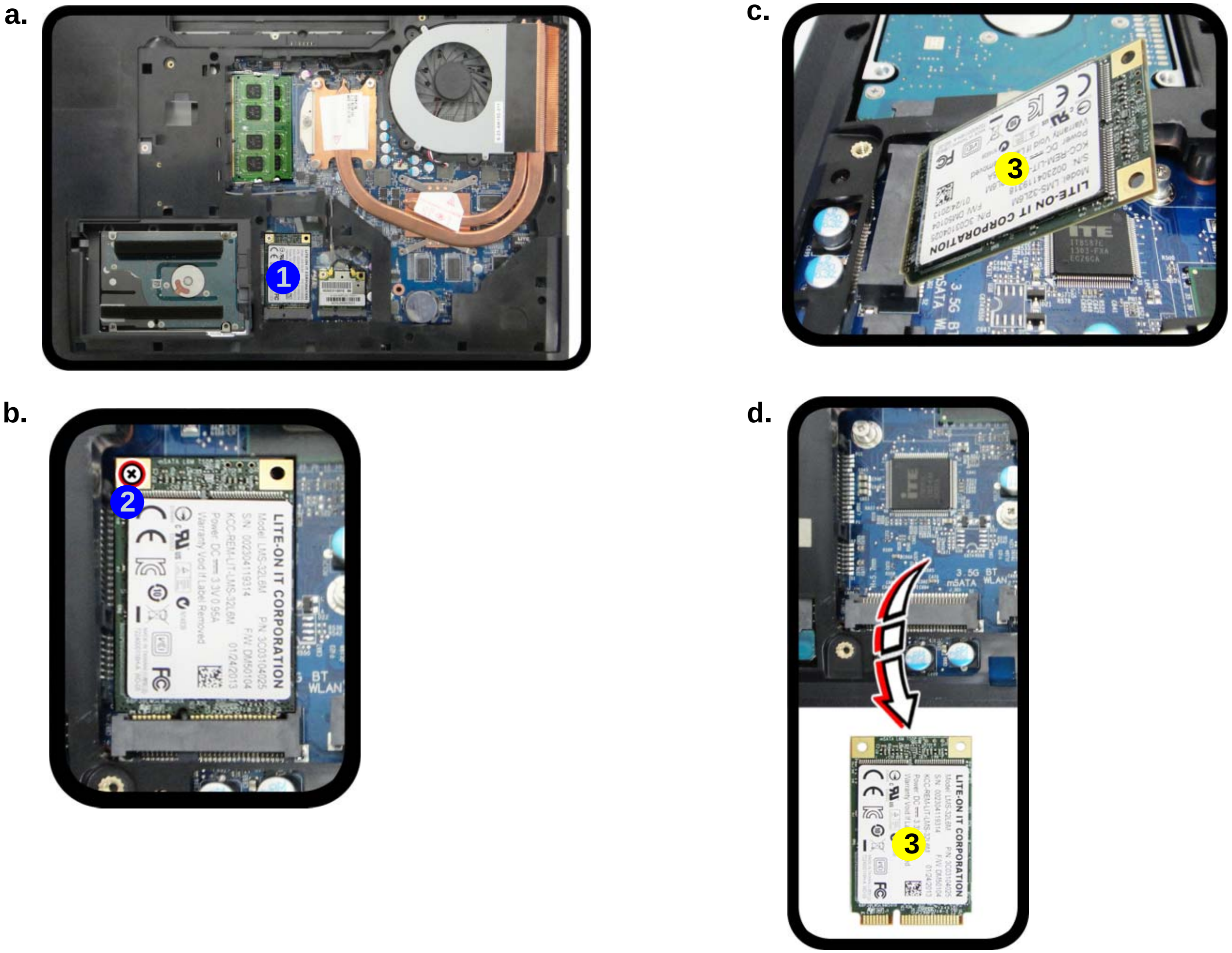


Figure 15
MSATA Module Removal

a. Locate the module.
b. Remove the screw.
c. The module will pop-up.
d. Lift the module up off the socket.

3. MSATA Module

- 1 Screw

Figure 16
CCD Removal

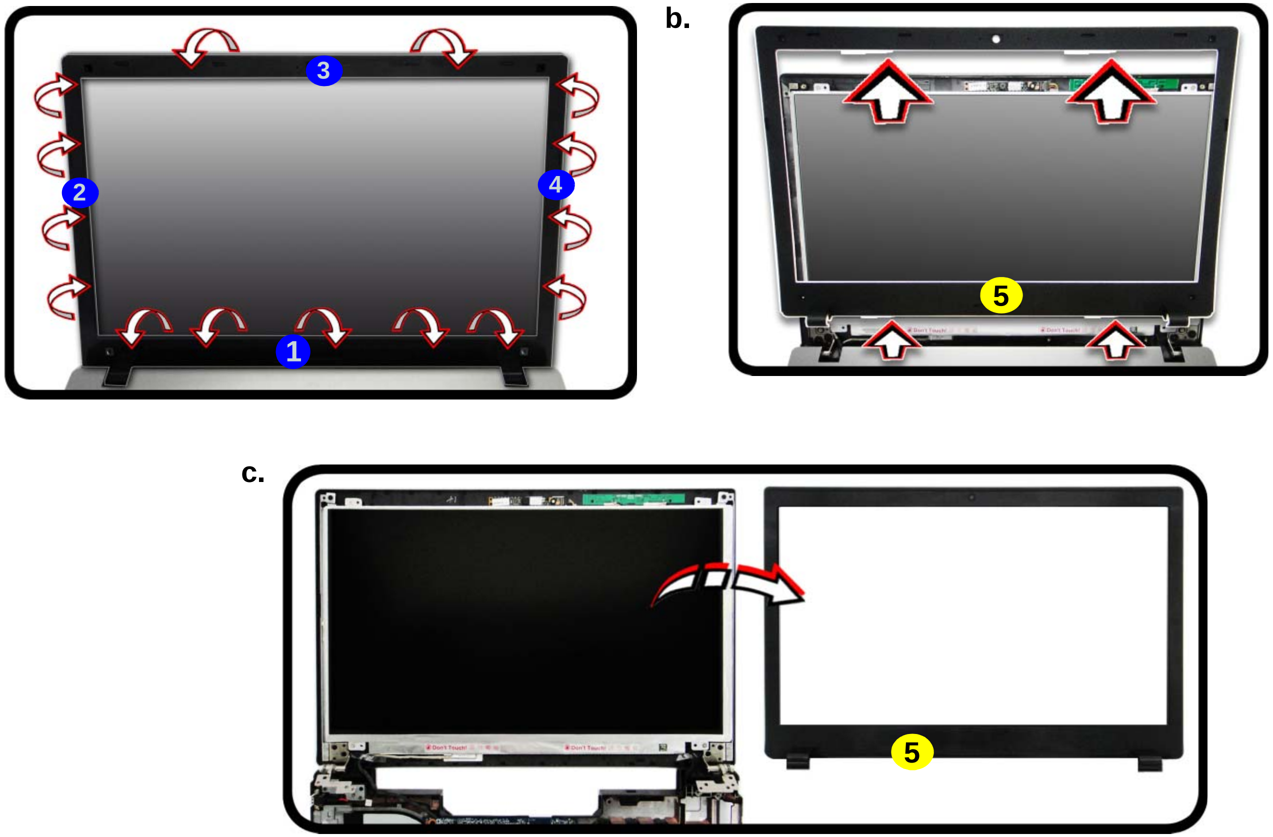
a. Run your fingers around the inner frame of the LCD panel at the points indicated by the arrows.
b. Lay the computer down on a flat surface with the top case up forming a 90 degree angle. Push the LCD front panel upwards before carefully lifting it up.
c. Remove the LCD front cover.

5. LCD Front Cover

Removing the CCD

1. Turn **off** the computer, turn it over, and remove the battery (***page 2 - 14***).
2. Run your fingers around the inner frame of the LCD panel at the points as indicated by the arrows 1 - 4 .
3. Lay the computer down on a flat surface with the top case up forming a 90 degree angle. Push the LCD front cover 5 upwards before carefully lifting it up.
4. Remove the LCD front cover 5 (***Figure 16c***).

a. b. c.



5. Disconnect the cable 6.
6. Remove the CCD module 7 (*Figure 17f*).
7. Reverse the process to install a new CCD module.

d.



e.

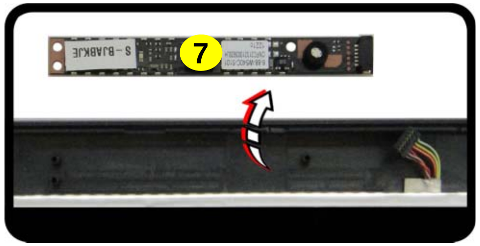


Figure 17
CCD Removal (cont'd)

d. Disconnect the cable.
e. Remove the CCD module.

7. CCD Module

Appendix A:Part Lists

This appendix breaks down the ***W670SZQ*** series notebook's construction into a series of illustrations. The component part numbers are indicated in the tables opposite the drawings.

Note: This section indicates the *manufacturer's* part numbers. Your organization may use a different system, so be sure to cross-check any relevant documentation.

Note: Some assemblies may have parts in common (especially screws). However, the part lists DO NOT indicate the total number of duplicated parts used.

Note: Be sure to check any update notices. The parts shown in these illustrations are appropriate for the system at the time of publication. Over the product life, some parts may be improved or re-configured, resulting in *new* part numbers.

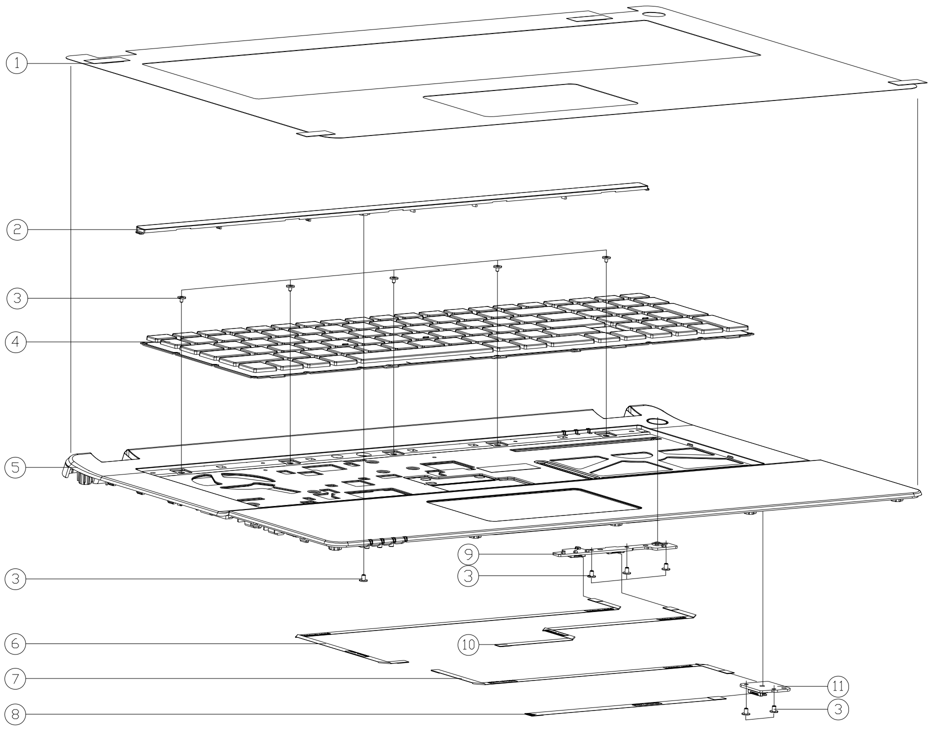
Part List Illustration Location

The following table indicates where to find the appropriate part list illustration.

Table A - 1
Part List Illustration Location

Part	
Top	*page A - 3*
Bottom	*page A - 4*
COMBO	*page A - 5*
DVD Dual Drive	*page A - 6*
HDD	*page A - 7*
2nd HDD	*page A - 8*
LCD	*page A - 9*

Top

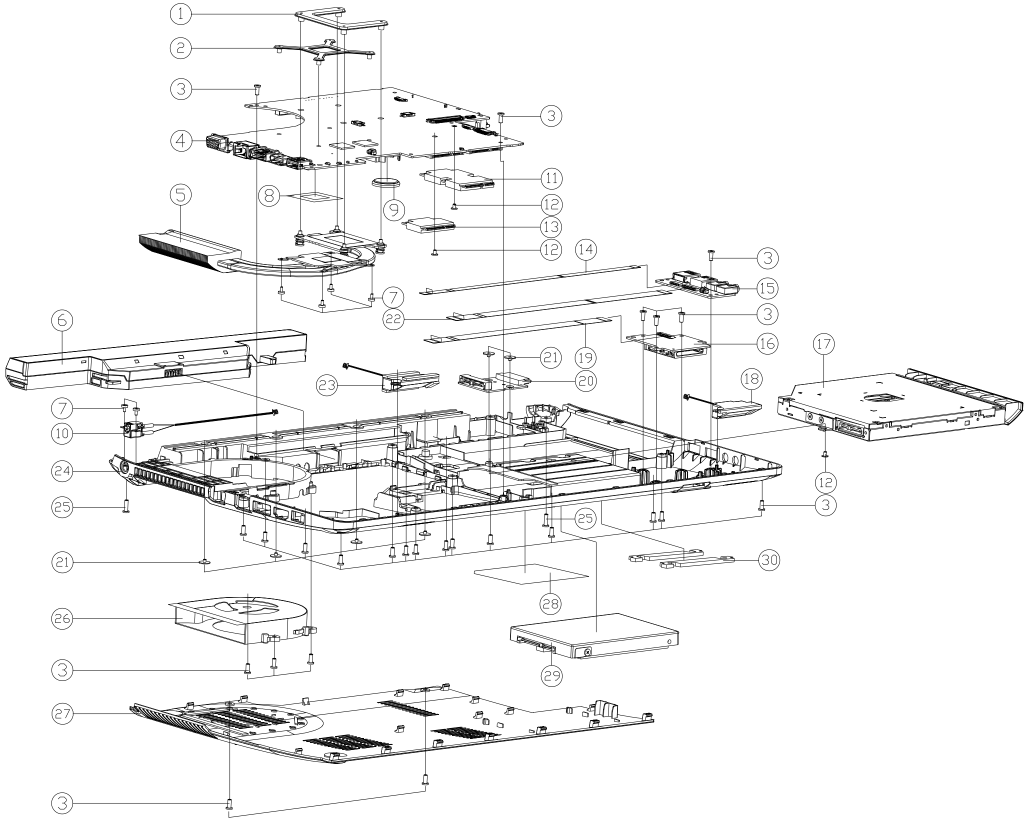


ITEM	PART NAME	PART NO	REMARK
1	TOP CASE PROTECTION MYLAR 8B35+3M8915 W670SRQ	6-40-W6708-011	
2	KB COVER TN37 15BX W670SRQ	6-42-W6702-042	
2	KB COVER TN3715BX W670SRQ FOR DNS	6-42-W6702-042-D	
3	SCREW M2*3L KI NI ICT NY (DD=Φ4.5,DT=0.4)	6-35-B1120-3RE	
4	WIN8 K/B USA(BLACK)& FRAME(US) MODULE W670SRQ	6-79-W670SRQK-010-W	
5	IDLE 24H-TOP CASE MODULE ASS'Y W670SRQ	6-79-W670SRQ2-010	
5	IDLE 24H-TOP CASE MODULE FOR LIGHT KB ASS'Y W670SRQ	6-79-W670SRQ2-020	
6	FFC CABLE FOR MB TO POWER BOARD 4PIN W670SRQ(CNJS)	6-43-W6700-060	
7	FFC CABLE FOR MB TO CLICK BOARD 4PIN W670SRQ(CNJS)	6-43-W6700-040	
8	FFC CABLE FOR CLICK PAD TO CLICK BOARD 6PIN W670SRQ(CNJS)	6-43-W6700-050	
9	POWER SWITCH BOARD V2.0 W670SRQ	6-77-W670S-D02	
10	FFC CABLE FOR MB TO POWER BOARD 10PIN W670SRQ(CNJS)	6-43-W6700-070	
11	EXT CLICK BOARD V2.0 W670SRQ	6-77-W6702-D02	

Figure A - 1
Top

Bottom

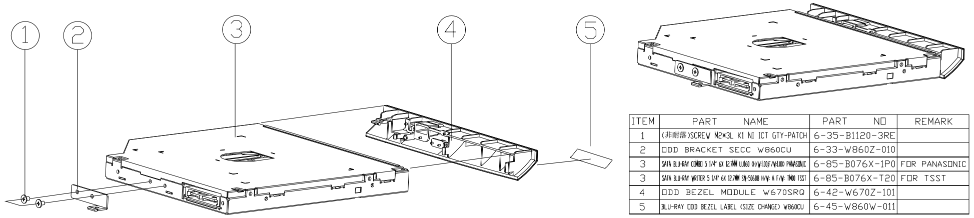
Figure A - 2
Bottom



ITEM	PART NAME	PART NO	REMARK
1	CPU SUPPORT BRACKET SECC T=1.5 P150HM	6-33-X510S-011	
2	VGA SUPPORTER SUS430 X7200	6-33-X720S-040	FOR W670SRQ
2	VGA SUPPORTER SUS430 W650SH	6-33-W650S-010	FOR W670SHQ
3	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
4	MAIN BOARD V3.0 W670SRQ	6-77-W670SR00-D03	
4	MAIN BOARD V3.0 (W/O TPM) W670SHQ	6-77-W670SH00-D03	
4	MAIN BOARD V3.0(W/TPM) W670SHQ	6-77-W670SH00-D03-1	
5	CPU HEATSINK MODULE W650SR	6-31-W650N-101	
6	BAT P S LI 11.1V/5.6AH/62.16WH PSE 3S2P SMP/SAMSUNG 9801/02113F(TI GAUGE)MECHANICAL DESIGN CHANGE W650SR	6-87-W650S-4D7A2	(OPTION)
6	BAT P S LI 11.1V/4.4AH/48.84WH PSE 3S2P SMP/SAMSUNG 9801/0214F(TI GAUGE) MECHANICAL DESIGN CHANGE W650SR	6-87-W650S-4D4A2	(OPTION)
6	BAT P S LI 11.1V/5.6AH/62.16WH CASE WITH TEXTURE PSE 3S2P GLW/LG 7299-0306000(TI GAUGE)MECHANICAL DESIGN CHANGE W650SR	6-87-W650S-4E72	(OPTION)
6	BAT P S LI 11.1V/4.4AH/48.84WH CASE WITH TEXTURE PSE 3S2P GLW/LG 7299-0306000(TI GAUGE)MECHANICAL DESIGN CHANGE W650SR	6-87-W650S-4E42	(OPTION)
7	SCREW M1.6*3.5L K(T=1.2 D=4.5) BZ ICT NY	6-35-82116-3R5	
8	VGA CHIP MYLAR(30*30) NB9P-GE2 M860TU	6-40-M860S-091	FOR W670SRQ
8	MYLAR VGA CHIP ATI 30*30 HOLE 10*10 FOR W150DAQ	6-40-E555S-020	FOR W670SHQ
9	BATTERY 3V 210MA CR2032 (MITSUBISHI)	6-23-62015-607	FOR W670SRQ
9	BATTERY 3V 220MA BBBCR2032B (KTS)	6-23-6A2B2-030	FOR W670SHQ
10	DC CABLE FOR JACK 89999-00002-CL1 TO MB 145MM (ACES) W150ERQ	6-43-W15E0-040	
11	WLAN+BT COMBO INTEL DUAL BAND WIRELESS-AC 7260 WILKINS PEAK 2 2X2 AC+BT 7260HMW AC HALF MINI-CARD PCI-E W230ST	6-88-W230F-4200	(OPTION)
11	WLAN+BT COMBO INTEL DUAL BAND WIRELESS-N 7260 WILKINS PEAK 2 2X2 AGN+BT 7260HMW ANGR HMC PCI-E W230ST	6-88-W230F-4220	(OPTION)
11	WLAN+BT COMBO INTEL WIRELESS-N 7260 (WILKINS PEAK 2), 2X2 BGN+BT 4.0 LE 7260HMW BNGR HMC PCI-E W230ST	6-88-W230F-4210	(OPTION)
11	WLAN+BT COMBO LITEON WCBN601LH-CC (RTL8723AE) 802.11BGN 1X1 (PCI-E) +BT4.0 LE (USB) +REALTEK BT SOFTWARE HALF MINI-CARD	6-88-W345F-9400	(OPTION)
11	WLAN+BT COMBO AZUREWAVE AW-NB141H (RTL8723AE) 802.11BGN 1X1 (PCI-E) +BT4.0 LE (USB) +REALTEK BT SOFTWARE HALF MINI-CARD W345EU	6-88-W345F-7000	(OPTION)
11	WLAN LITEON WN6611LH-CC (RTL8188EE) 2 ANT. 802.11BGN 1X1 HALF MINI-CARD PCI-E FOR WOWLAN P370SM	6-88-P3702-9400	(OPTION)
11	WLAN AZUREWAVE AW-NE238H (RTL8188EE) 2 ANT. 802.11BGN 1X1 HALF MINI-CARD PCI-E FOR WOWLAN P370SM	6-88-P3702-7000	
12	SCREW M2*3L KI NI ICT NY (DD=Φ4.5,DT=0.4)	6-35-B1120-3RE	
13	MSATA3 SSD 32GB 3.3V 1A (LITEON P/N : LMS-32L6M) (CONTROLLER:MARVELL)(FLASH: TOSHIBA)	6-85-D4032-L00	(OPTION)
14	FFC CABLE FOR MB TO AUDIO BOARD (12PIN,PITCH=0.5,L=200) W670SRQ(CNJS)	6-43-W6700-010	
15	AUDIO BOARD V5.0 W650SR	6-77-W6508-D05	
16	CARD READER BOARD PCIE V2.0 W670SRQ	6-77-W670V-D12	
17	W/O ODD ASS'Y W670SRQ	6-79-W670SRQZ-000	(OPTION)
17	SATA DVD SUPER MULTI ASS'Y (OPTION)	6-79-W670SRQQ-000	(OPTION)
17	SATA BLU-RAY WRITER/COMBO ASS'Y (OPTION)	6-79-W670SRQW-000	(OPTION)
17	SATA BLU-RAY WRITER 6X ASS'Y (OPTION)	6-79-W670SZQW-010	(OPTION)
18	SPK+CABLE R 50MM (LT251254XM) 2W 4Ω ADD SPONGE W650EH	6-23-5W65E-0R1	
19	FFC CABLE FOR MB TO CARD READER BOARD (22PIN,PITCH=0.5,L=165) W670SRQ(CNJS)	6-43-W6700-030	
20	EXT ODD BOARD V2.0 W670SRQ	6-77-W670N-D02	
21	SCREW M2*2L KI BK/Z ICT NY(Φ8,T=0.6)	6-35-B6120-2RE	
22	FFC CABLE FOR MB TO AUDIO BOARD (22PIN,PITCH=0.5,L=200) W670SRQ(CNJS)	6-43-W6700-020	
23	SPK +CABLE L 40MM (LT251254XM) 2W 4Ω W670SRQ	6-23-5W670-0L0	
24	BOTTOM CASE MODULE W670SRQ	6-39-W6703-011	
25	SCREW M2.5*8L KI BK/Z NY ICT	6-35-B6125-8R0	
26	FAN+CON 79*15MM 5V 0.4A 3500RPM AB7905HX-DE3 ADDA W150ERQ	6-23-AW15E-011	
27	CPU COVER MODULE W670SRQ	6-42-W6708-101	
28	PRODUCT LABEL FOR W670SRQ	6-45-W670SRQ3-010	
28	PRODUCT LABEL FOR W670SHQ	6-45-W670SHQ3-010	
29	W/O 2ND HDD ASS'Y W670SRQ	6-79-W670SRQJ-030	
29	W/ 2ND HDD ASS'Y W670SRQ	6-79-W670SRQJ-040	
29	W/O HDD ASS'Y W670SRQ	6-79-W670SRQJ-010	
29	W/HDD ASS'Y W670SRQ	6-79-W670SRQJ-020	
30	SPONGE (76*10*2.5T) CR4305 FOR 7MM HDD W540EU	6-47-0019A-760	

COMBO

Figure A - 3
COMBO

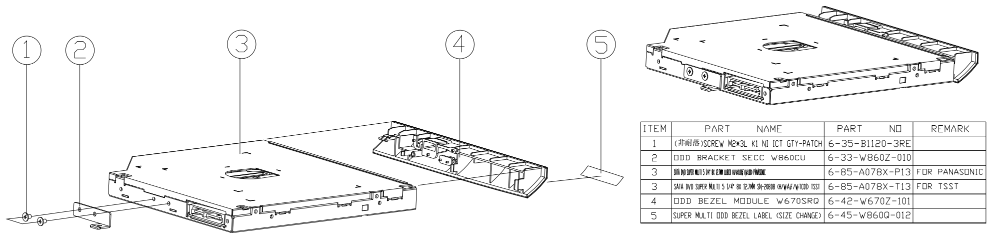


ITEM	PART NAME	PART NO	REMARK
1	(非耐落)SCREW M2*3L K1 NI ICT GTY-PATCH	6-35-B1120-3RE	
2	ODD BRACKET SECC W860CU	6-33-W860Z-010	
3	SATA BLU-RAY COMBO 5 1/4" 6X 12.7MM UJ160 (H/W:1.00,F/W:1.00) PANASONIC	6-85-B076X-1P0	FOR PANASONIC
3	SATA BLU-RAY WRITER 5 1/4" 6X 12.7MM SN-506BB H/W: A F/W: TM00 TSST	6-85-B076X-T20	FOR TSST
4	ODD BEZEL MODULE W670SRQ	6-42-W670Z-101	
5	BLU-RAY ODD BEZEL LABEL (SIZE CHANGE) W860CU	6-45-W860W-011	

DVD DUAL

A.Part Lists

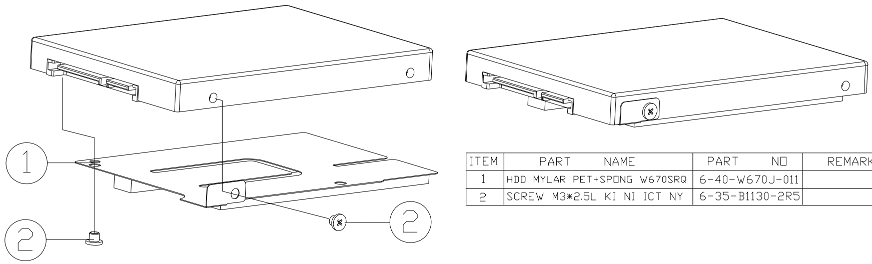
Figure A - 4
DVD DUAL



ITEM	PART NAME	PART NO	REMARK
1	(非耐落)SCREW M2*3L K1 NI ICT GTY-PATCH	6-35-B1120-3RE	
2	ODD BRACKET SECC W860CU	6-33-W860Z-010	
3	SATA DVD SUPER MULTI 5 1/4" 8X 12.7MM [illegible] PANASONIC	6-85-A078X-P13	FOR PANASONIC
3	SATA DVD SUPER MULTI 5 1/4" 8X 12.7MM SN-208DB (H/W:A;F/W:TC01) TSST	6-85-A078X-T13	FOR TSST
4	ODD BEZEL MODULE W670SRQ	6-42-W670Z-101	
5	SUPER MULTI ODD BEZEL LABEL (SIZE CHANGE)	6-45-W860Q-012	

HDD

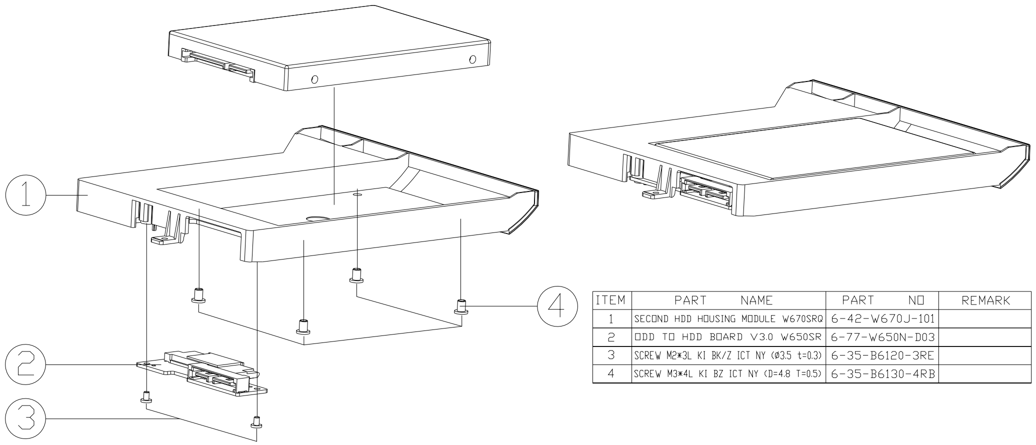
Figure A - 5
HDD



ITEM	PART NAME	PART NO	REMARK
1	HDD MYLAR PET+SPONG W670SRQ	6-40-W670J-011	
2	SCREW M3*2.5L KI NI ICT NY	6-35-B1130-2R5	

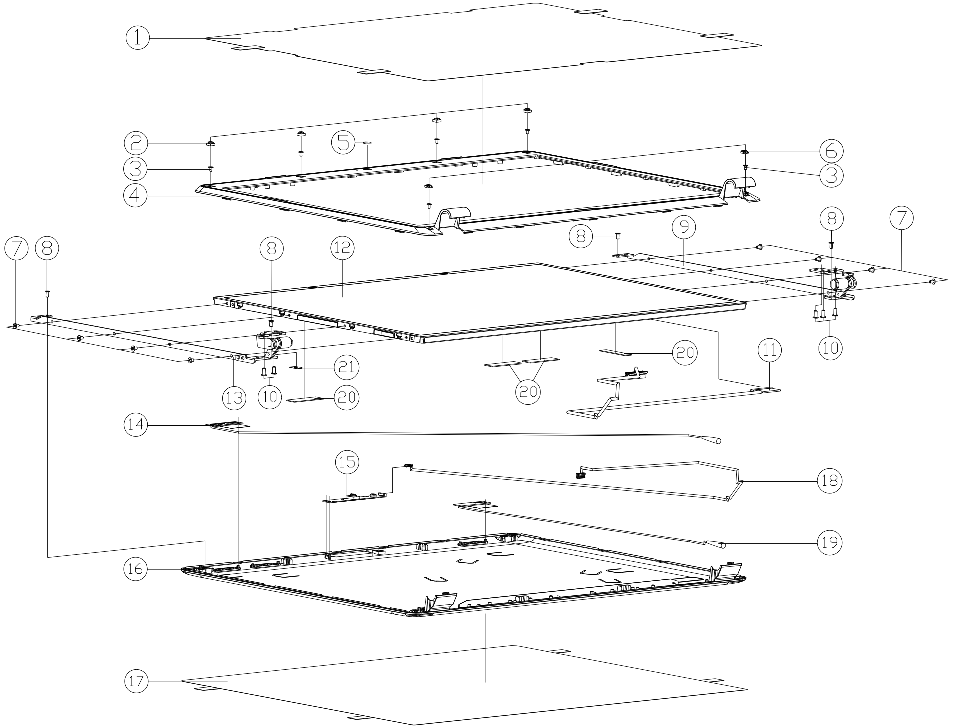
2nd HDD

Figure A - 6
2nd HDD



ITEM	PART NAME	PART NO	REMARK
1	SECOND HDD HOUSING MODULE W670SRQ	6-42-W670J-101	
2	ODD TO HDD BOARD V3.0 W650SR	6-77-W650N-D03	
3	SCREW M2*3L KI BK/Z ICT NY (Ø3.5 t=0.3)	6-35-B6120-3RE	
4	SCREW M3*4L KI BZ ICT NY (D=4.8 T=0.5)	6-35-B6130-4RB	

LCD



ITEM	PART NAME	PART NO	REMARK
1	LCD FRONT COVER PROTECTION MYLAR (MP) W670SRQ	6-40-W6701-011	
2	FRONT UP RUBBER (MP) FOR W670SRQ	6-47-W6701-021	
3	SCREW M2*4L KI BZ ICT NY	6-35-B6120-4RA	
4	LCD FRONT COVER MODULE (MP) FOR W670SRQ	6-39-W6701-011	
5	CCD LENS PMMA W650SR	6-42-W6501-010	
6	FRONT DOWN RUBBER (MP) FOR W670SRQ	6-47-W6701-031	
7	SCREW M2*3L KI NI ICT NY (DD=Φ4.5,DT=0.4)	6-35-B1120-3RE	
8	SCREW M2.5*5L KI BK/Z ICT NY	6-35-B6125-5RA	
9	LCD HINGE R (MP) W670SRQ	6-33-W6701-0R1	
10	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
11	WIRE CABLE FOR LVDS (DUAL) 410MM (HL/LC CON:LMC4005001-HF) W670SRQ	6-43-W6701-011-L	
12	LCD 17.3" FHD CHIMEI N173HGE-L11 (LED) 6.0 MM	6-50-NB260-D01	
12	LCD 17.3" HD+ LG LP173WD1-TLF1 (LED) 6.0 MM	6-50-NA160-L08	
12	LCD 17.3" HD+ AU B173RW01 V5 (GLARE TYPE) (LED) 5.8MM	6-50-NA158-G03	
12	LCD 17.3" HD+ LG LP173WD1-TLE1 (GLARE TYPE) (LED) 6.0 MM	6-50-NA160-L09	
12	LCD 17.3" FHD CHIMEI N173HGE-L21 (GLARE TYPE) (LED) 6.0 MM	6-50-NB260-D00	
13	LCD HINGE L (MP) W670SRQ	6-33-W6701-0L1	
14	ANTENNA WIMAX WM1 PCB H=0.6MM 2.4G/3.5GHZ/5G L=900MM W670SRQ	6-23-7W670-030	
15	UVC CAMERA BISON FIX BN8VUC5TC-300 2M FHD SAMSUNG5B3 P370EM W/MIC W/LED FW0606	6-88-W540C-4902	
15	UVC CAMERA CHICONY FIX CNFC213-1 2M HD OV2659 W540EU FW9162 W/A-MIC W/LED	6-88-W540C-5102	
16	LCD BACK COVER MODULE (MP) FOR W670SRQ	6-39-W6701-021	
17	LCD BACK COVER PROTECTION MYLAR (MP) W670SRQ	6-40-W6701-021	
18	WIRE CABLE FOR CCD 590MM (HL) W670SRQ	6-43-W670T-011	
19	ANTENNA WIMAX WM2 PCB H=0.6MM 2.4G/3.5GHZ/5G L=700MM W670SRQ	6-23-7W670-020	
20	M/B LED SPONGE CR4305 (CHANGE) M1100	6-47-M110S-031	FOR W670SRQ For Only AUO Panel Use
21	HINGE L GASKET(9.5*7.3*0.2) FOR W670SRQ	6-47-00190-950	

Figure A - 7
LCD

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the ***W670SZQ*** notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

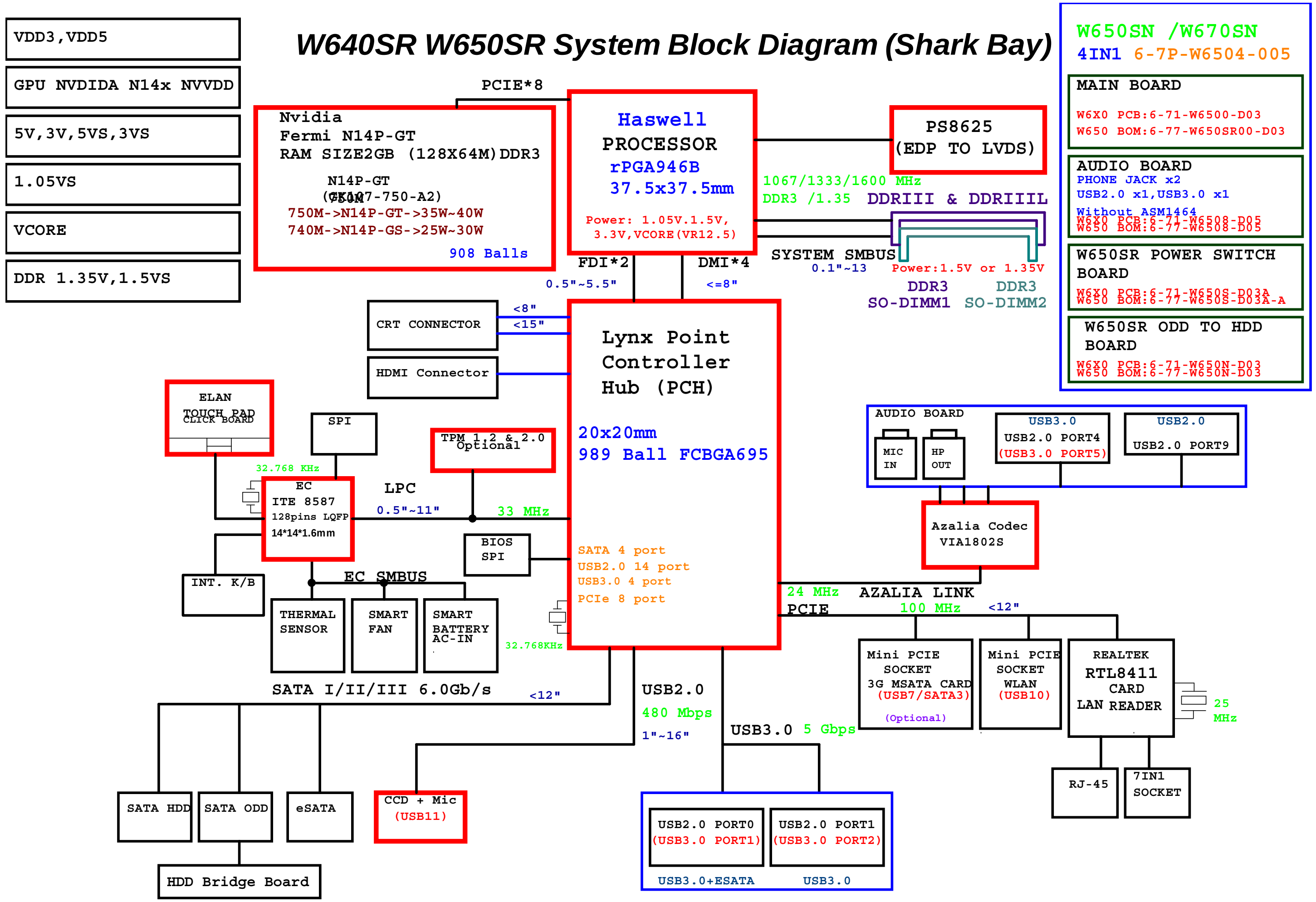
Table B - 1
SCHEMATIC DIAGRAMS

Version Note

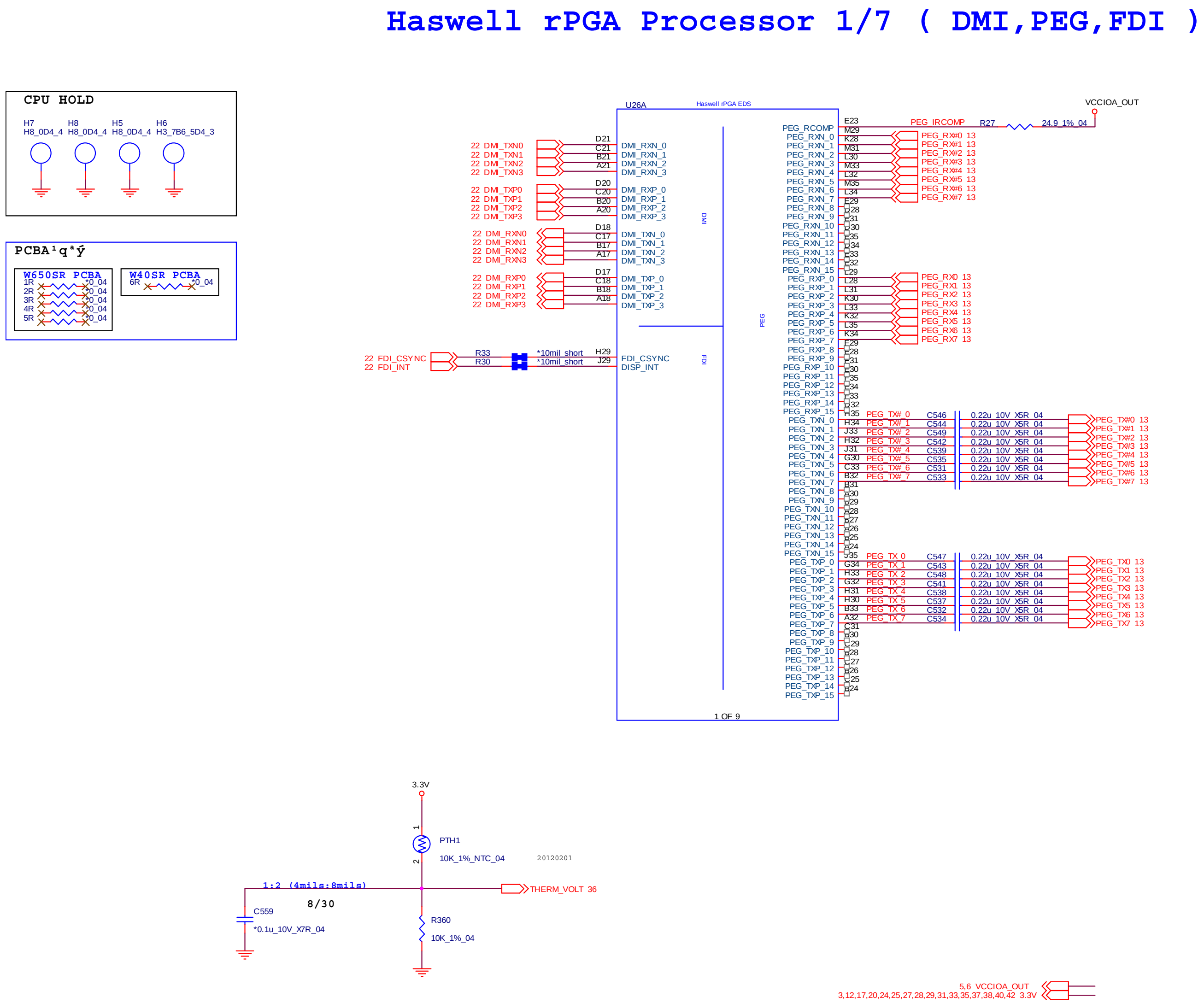
The schematic diagrams in this chapter are based upon version 6-7P-W6504-005. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

System Block Diagram

Sheet 1 of 46
System Block Diagram



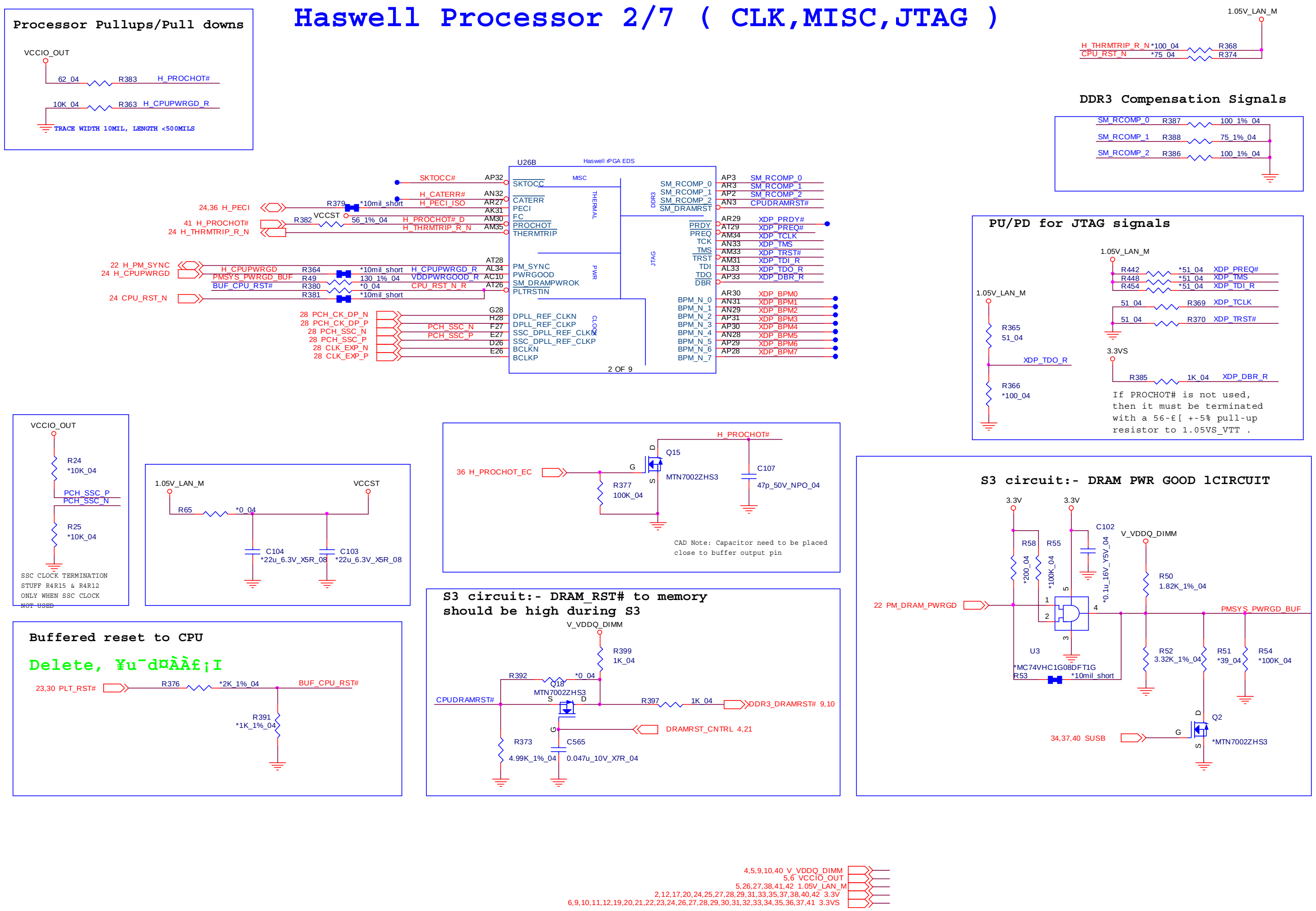
Processor 1/7-DMI, FDI, PEG



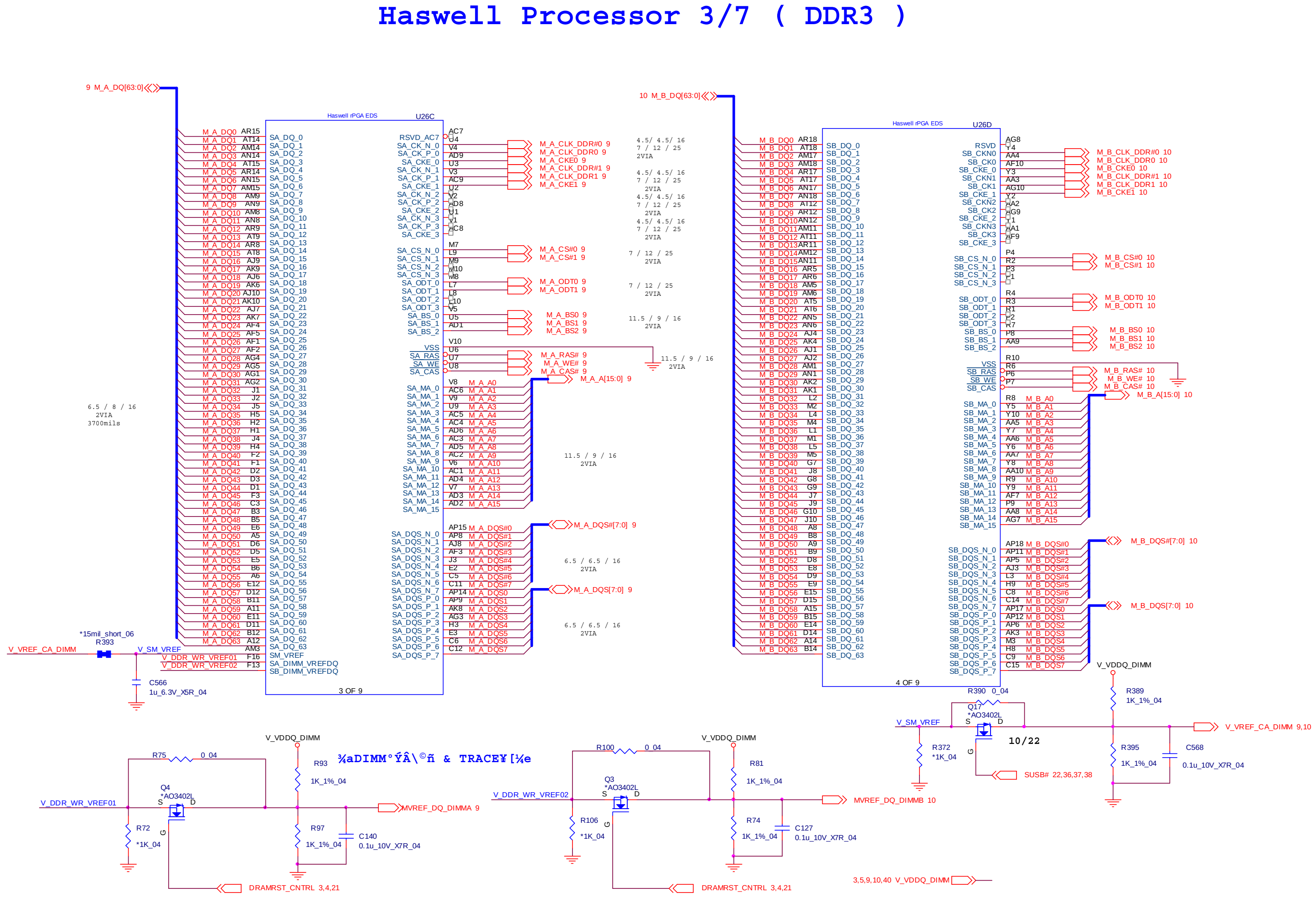
Sheet 2 of 46
Processor 1/7-DMI,
FDI, PEG

Processor 2/7- CLK, MISC

Sheet 3 of 46
Processor 2/7-CLK,
MISC



Processor 3/7- (DDR3)

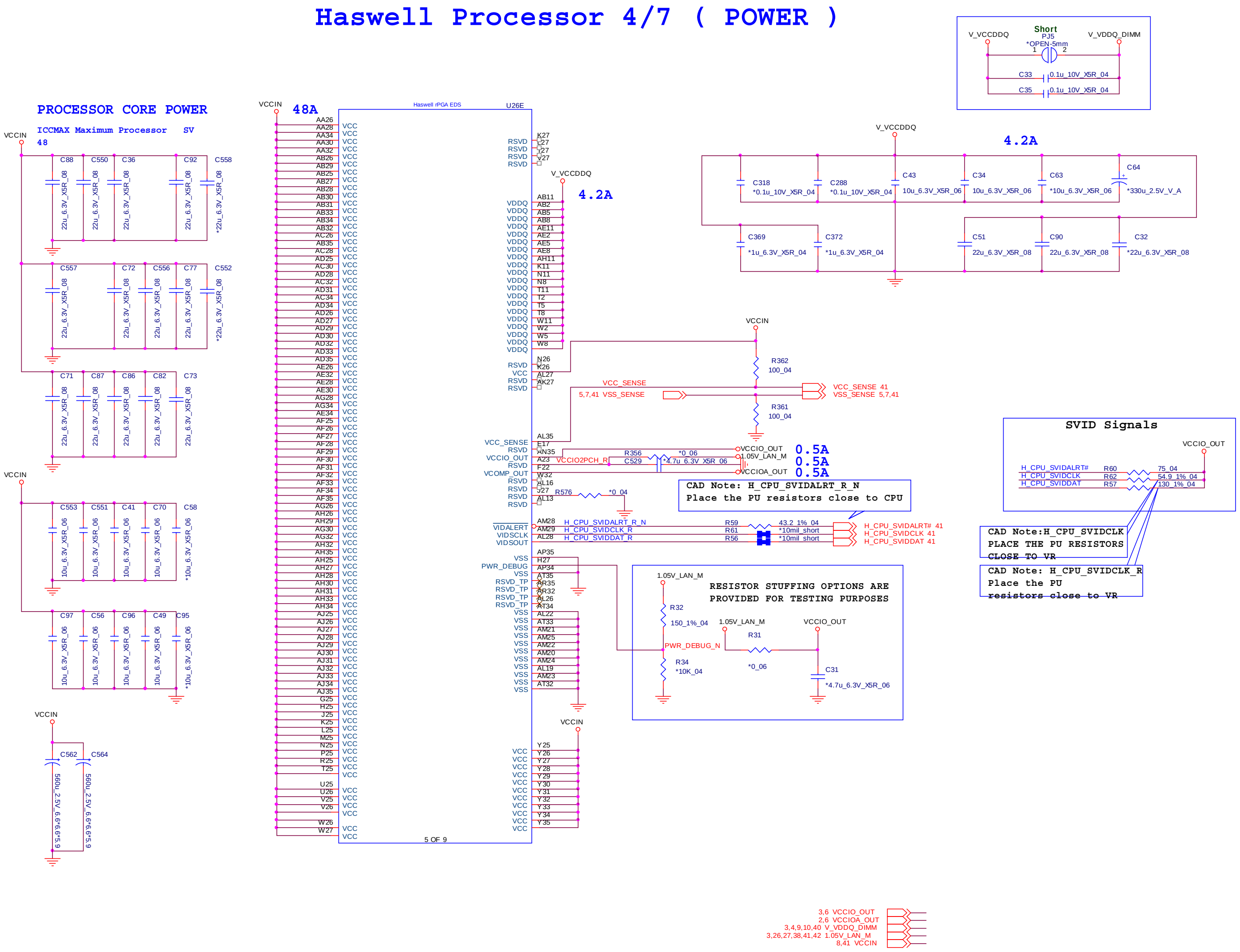


Sheet 4 of 46
Processor 3/7-
(DDR3)

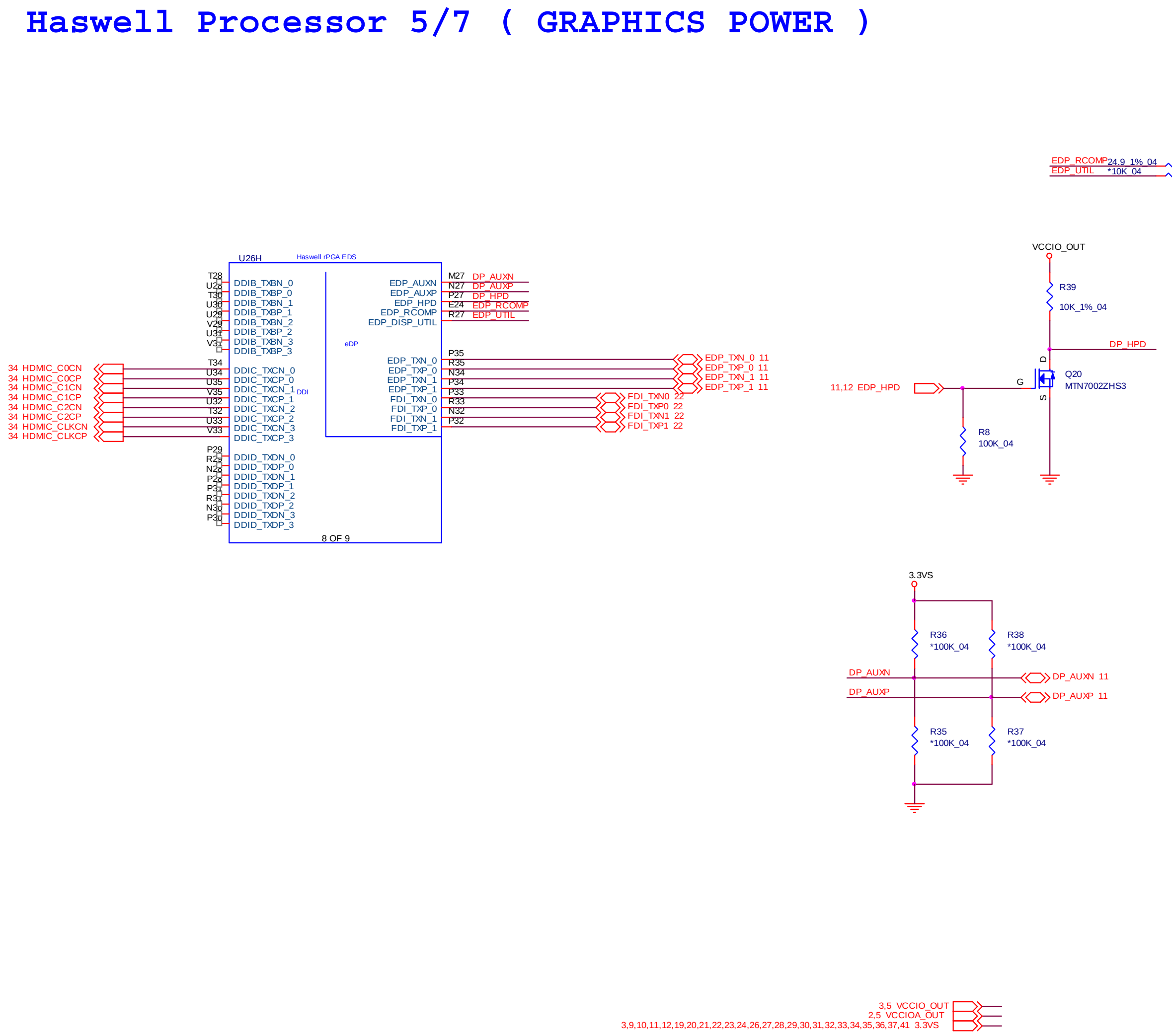
B.Schematic Diagrams

Processor 4/7- Power

Sheet 5 of 46
Processor 4/7-
Power



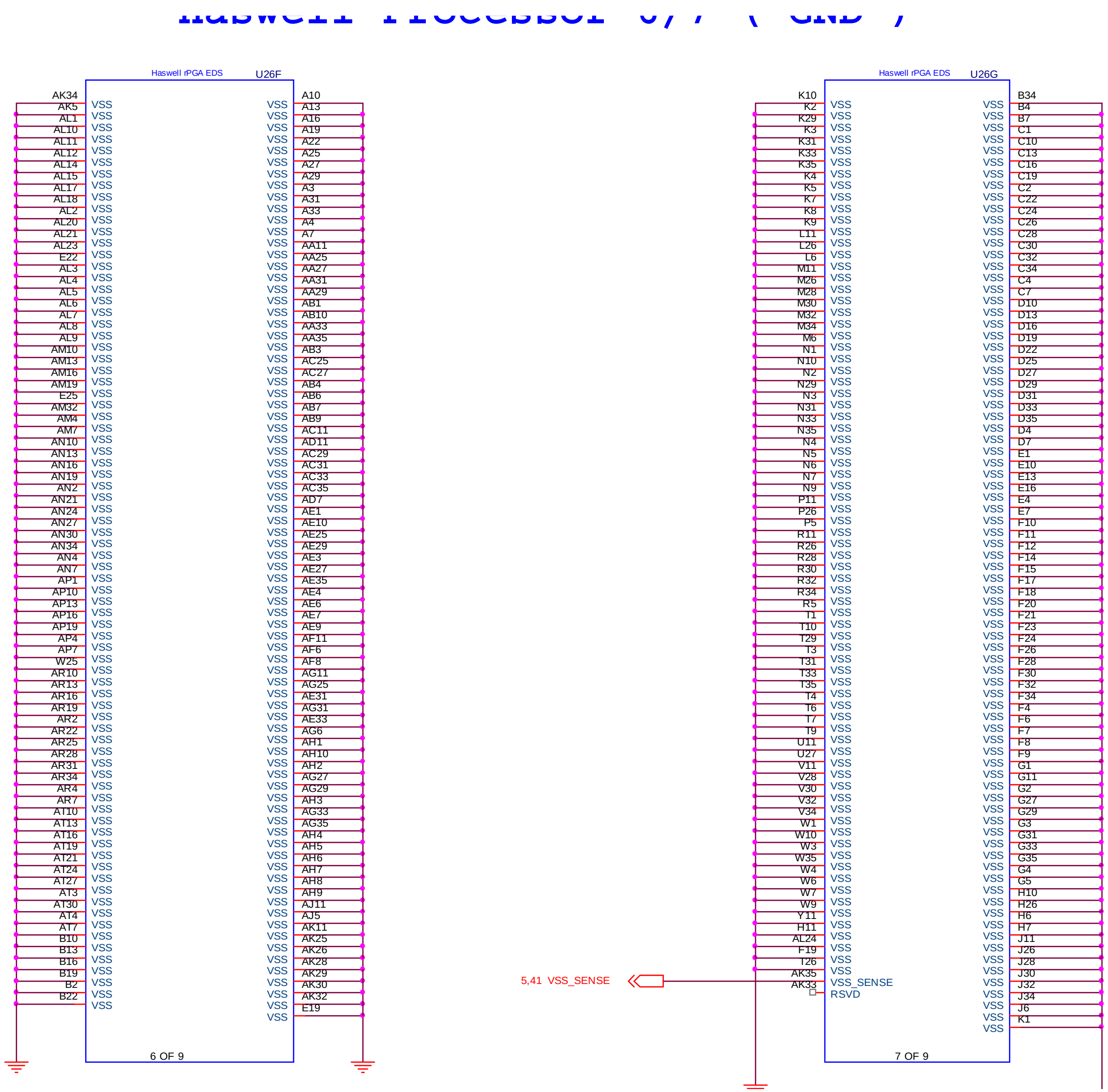
Processor 5/7- GFX PWR



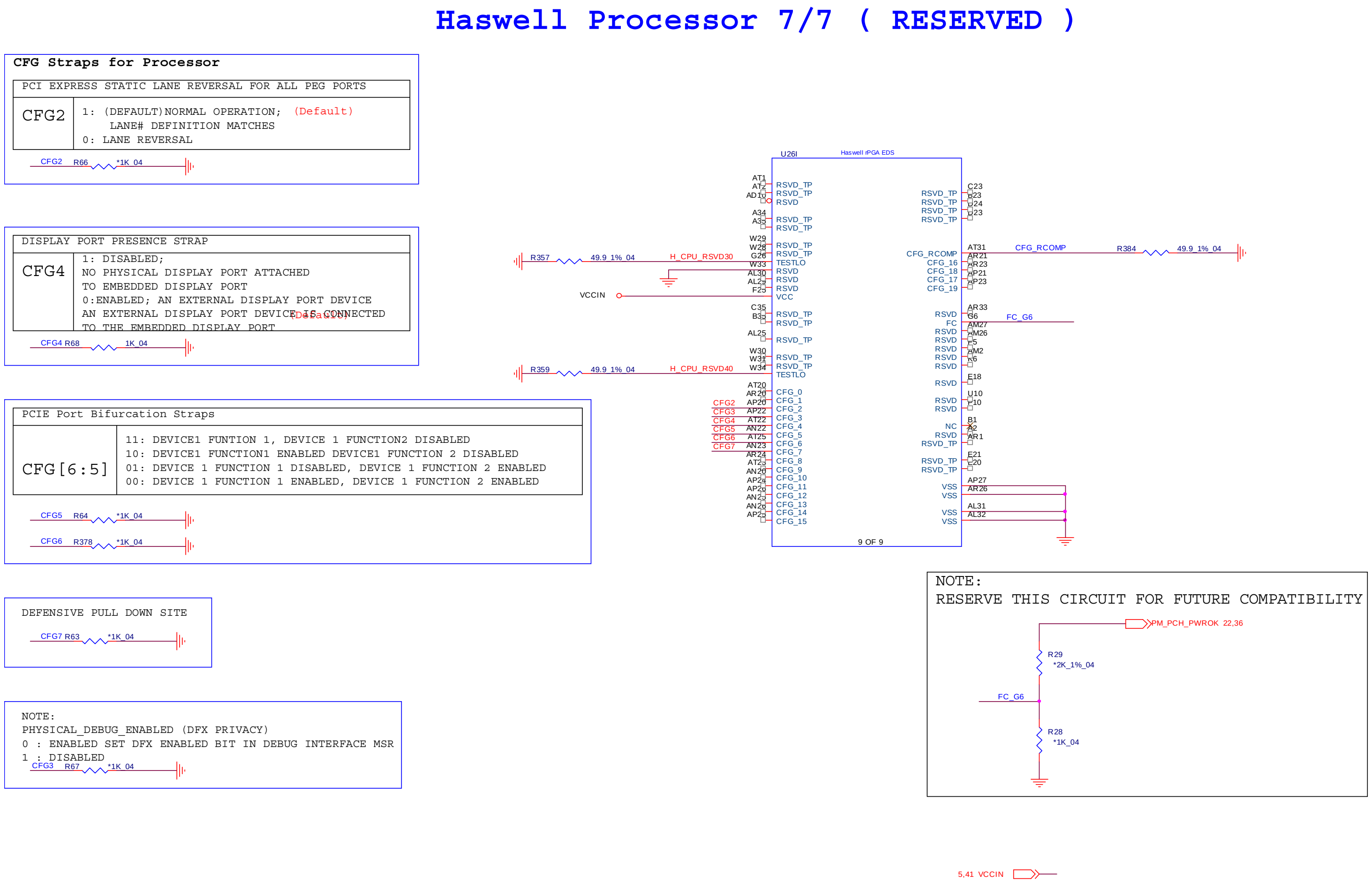
Sheet 6 of 46
Processor 5/7- GFX PWR

Processor 6/7- GND

Sheet 7 of 46
Processor 6/7- GND



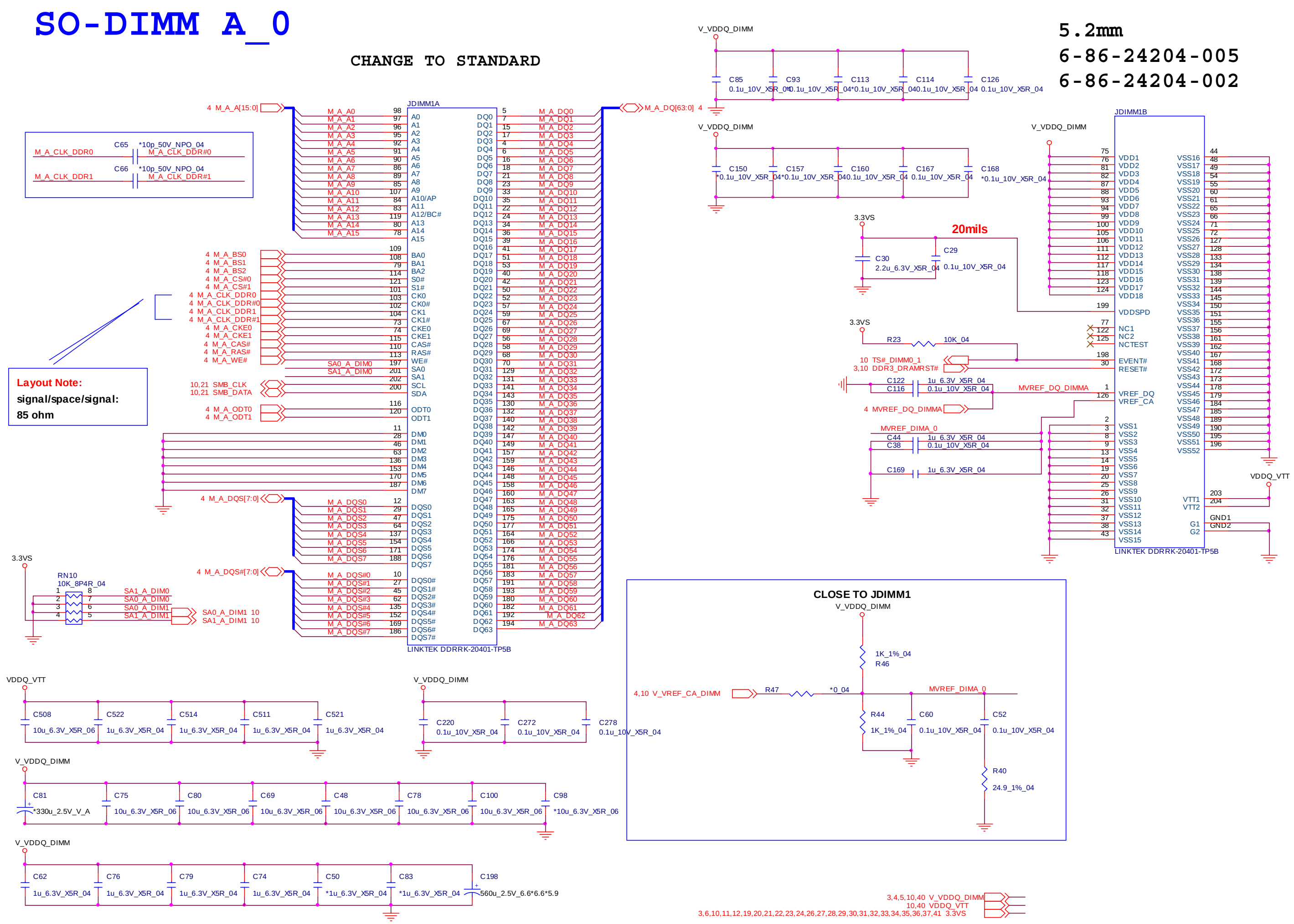
Processor 7/7- RSVD



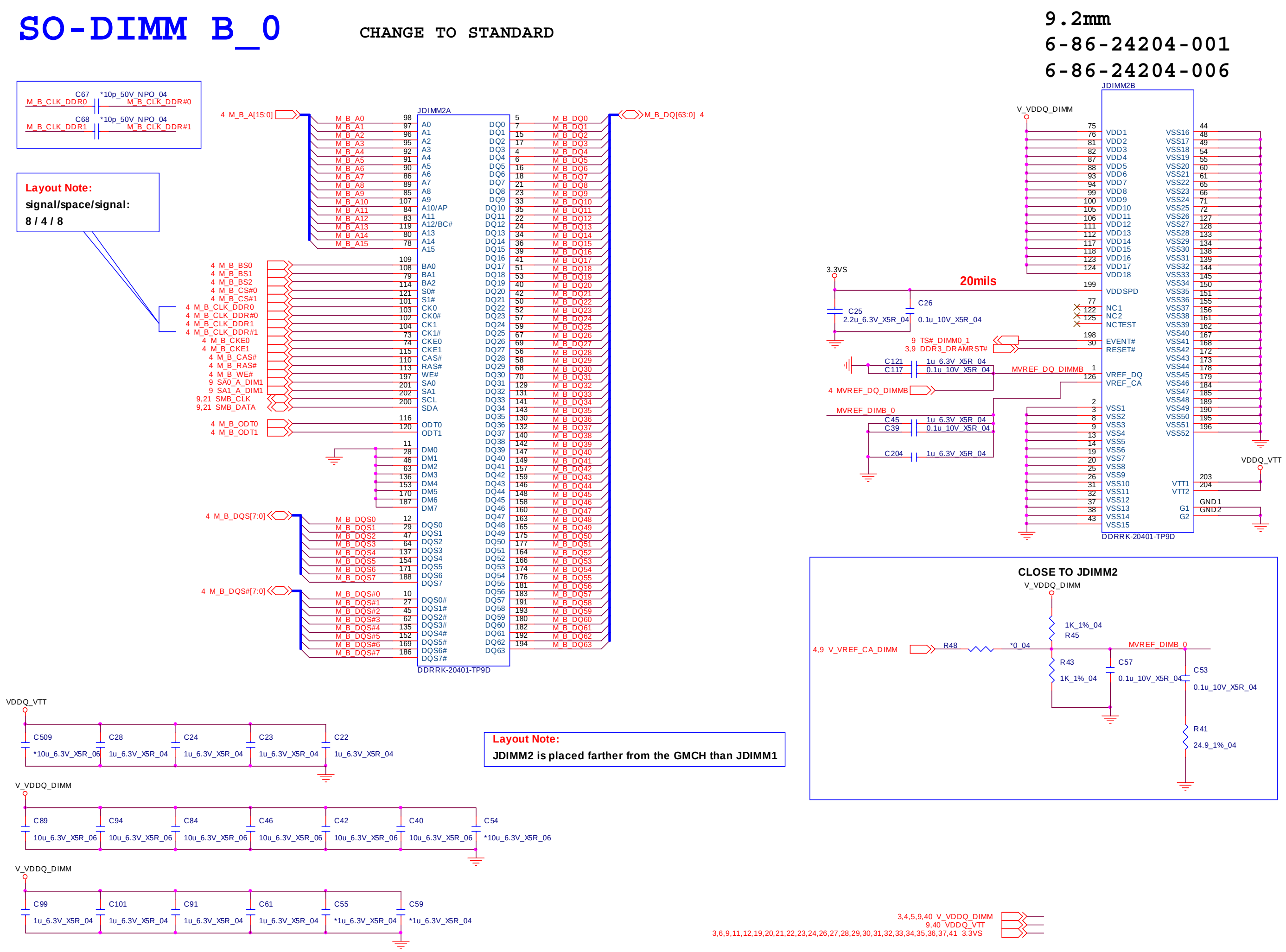
Sheet 8 of 46
Processor 7/7-
RSVD

DDR3 SO-DIMM_1

Sheet 9 of 46
DDR3 SO-DIMM_0



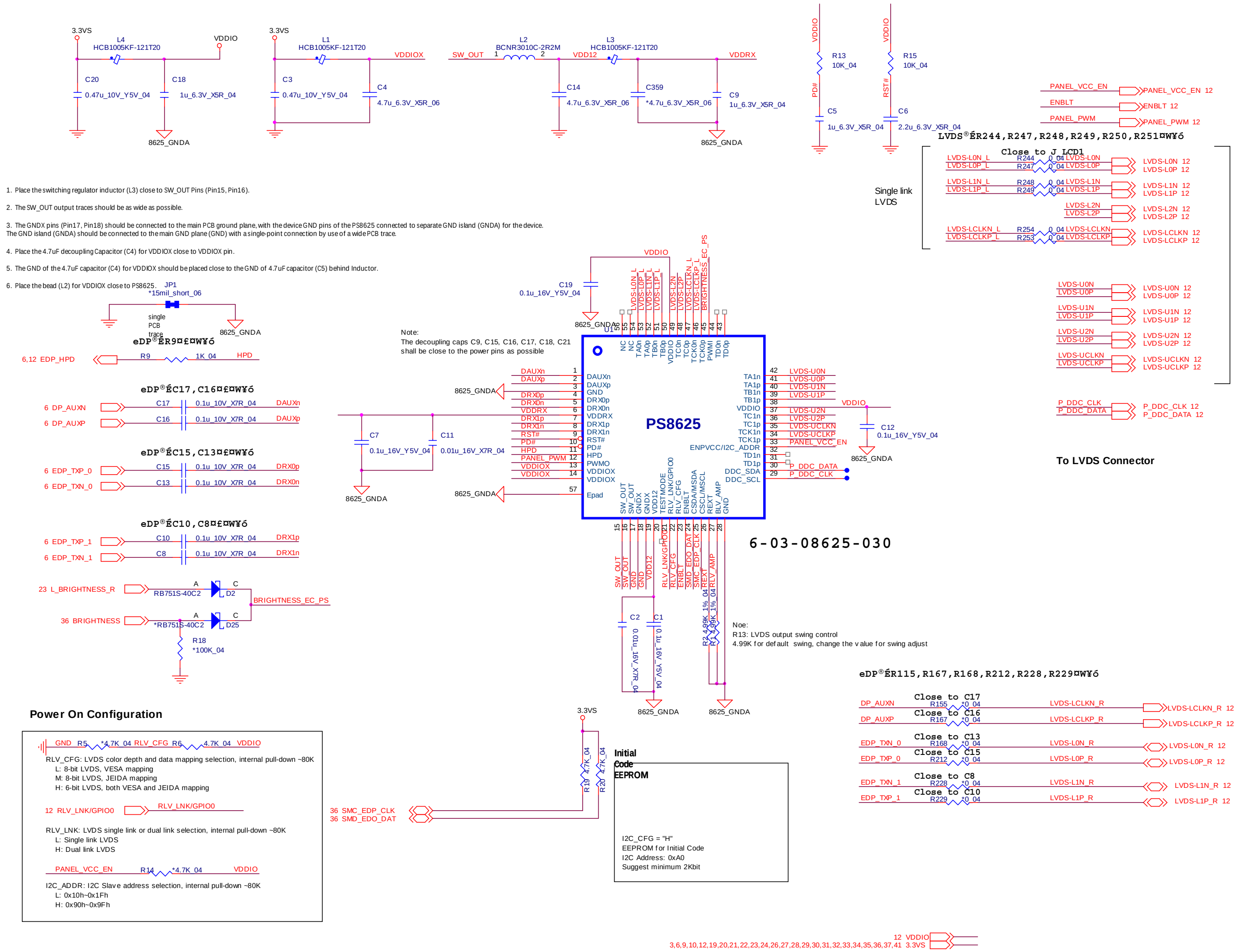
DDR3 SO-DIMM_2



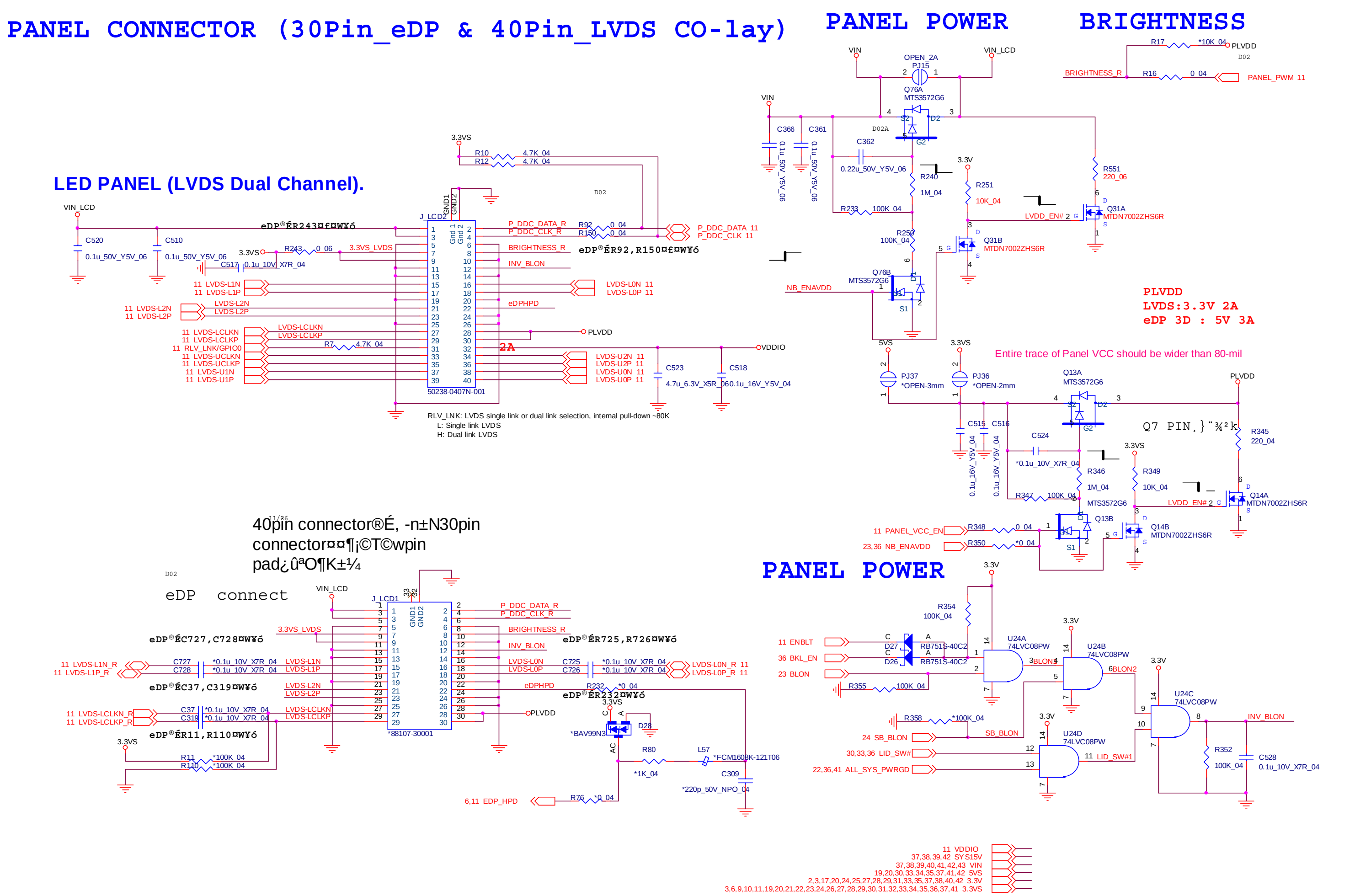
Sheet 10 of 46
DDR3 SO-DIMM_1

PS8625

Sheet 11 of 46
PS8625



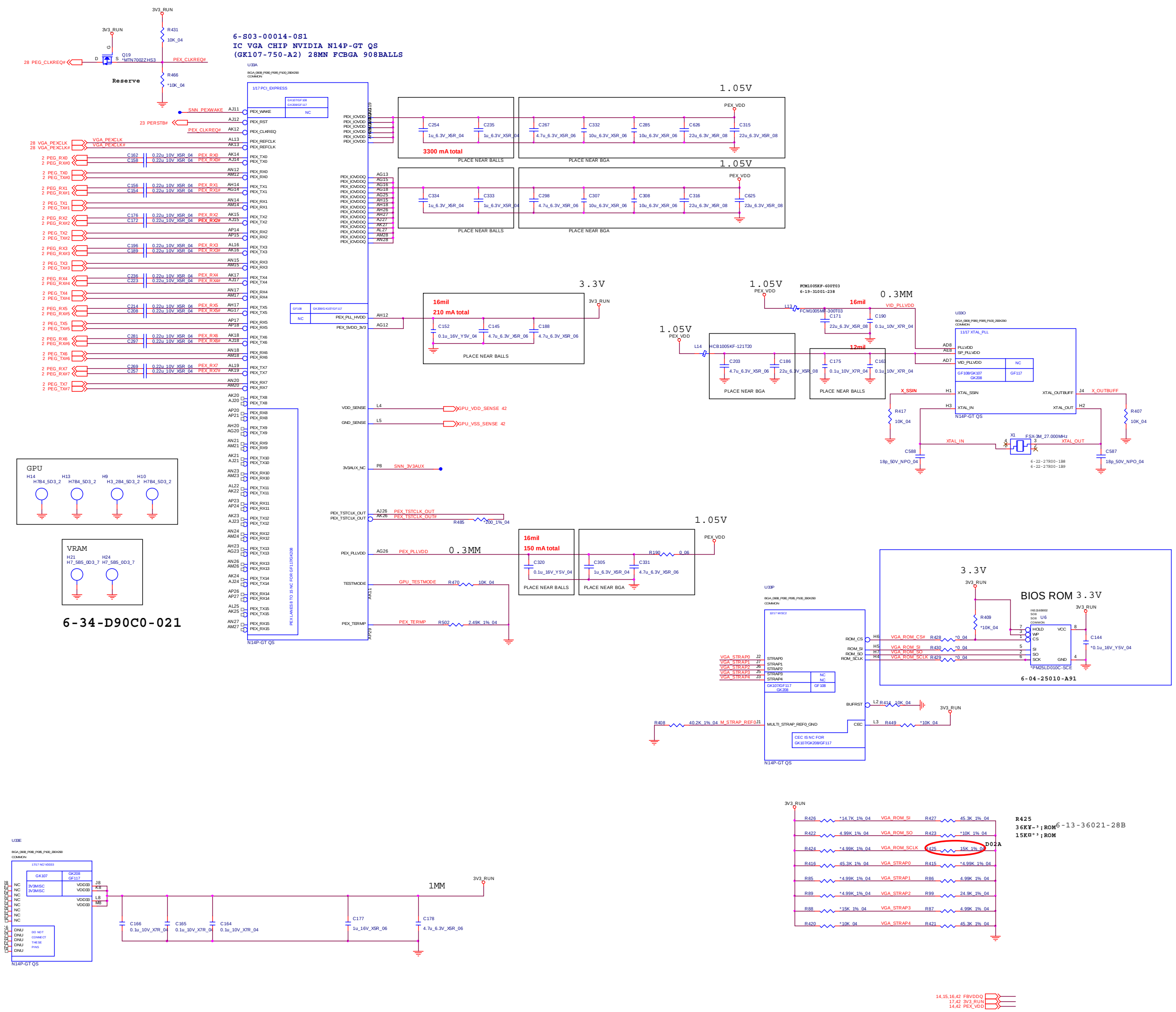
PANEL, INVERTER



Sheet 12 of 46
PANEL, INVERTER

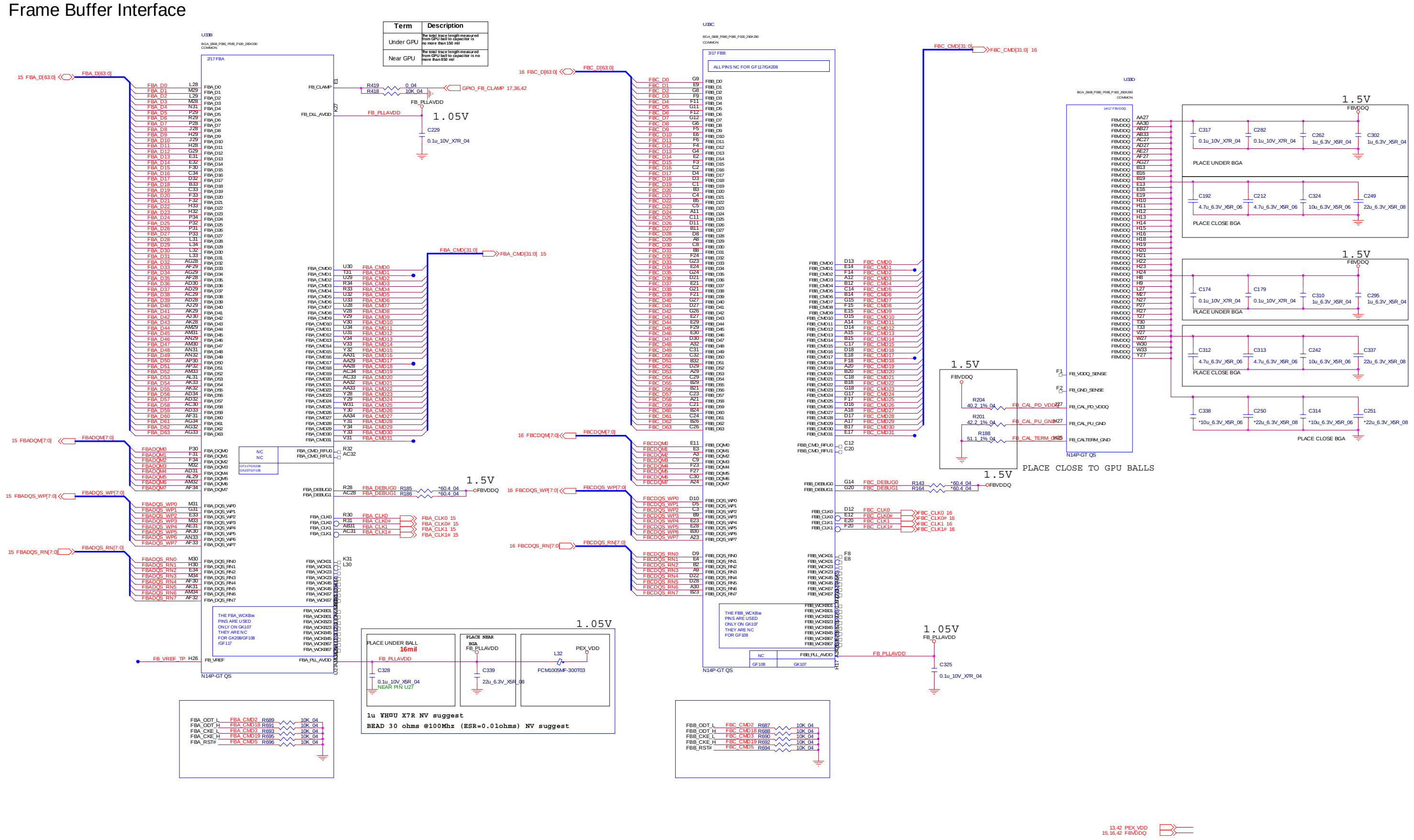
VGA PCI-E Interface

Sheet 13 of 46
VGA PCI-E
Interface



VGA Frame Buffer Interface

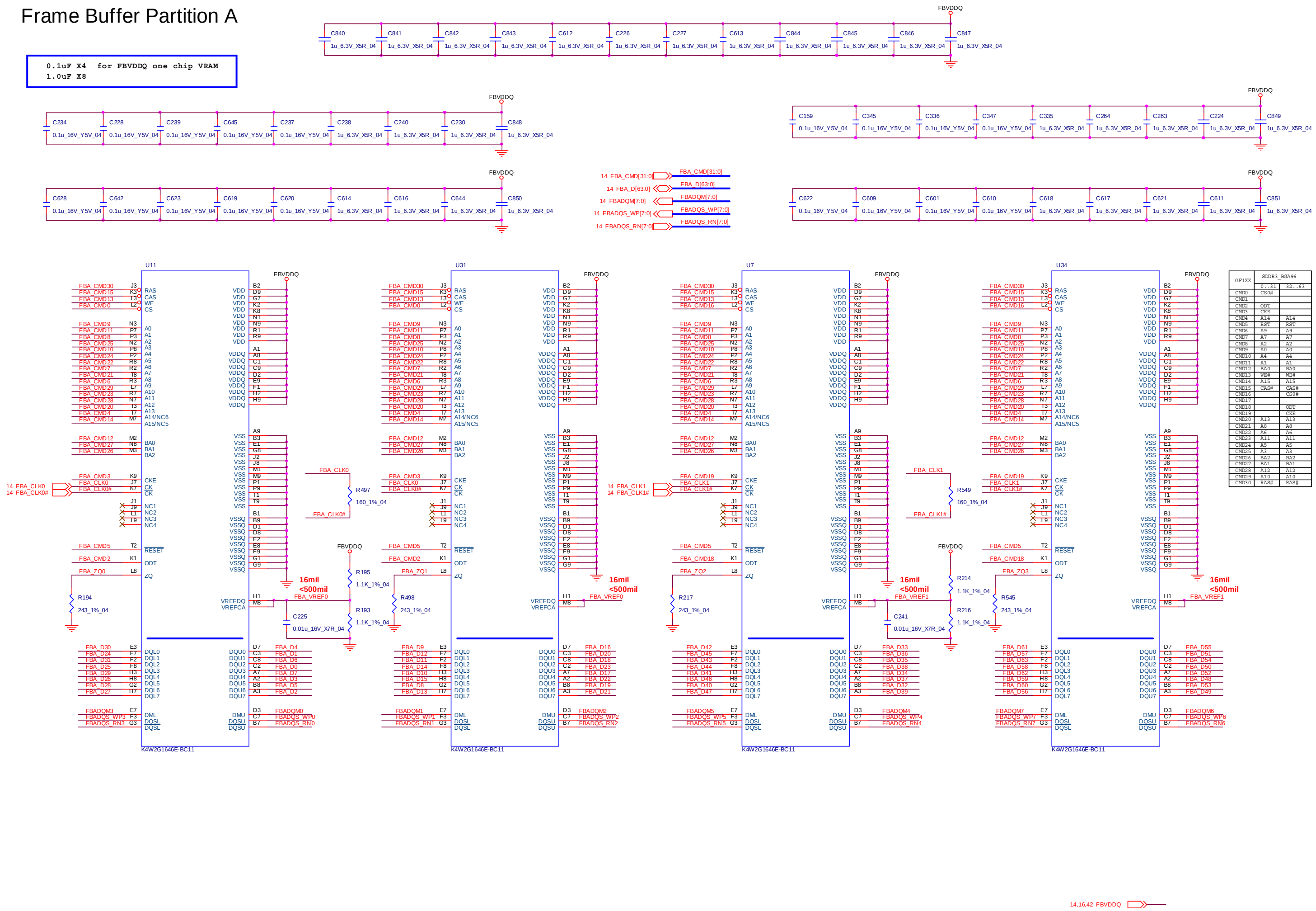
Frame Buffer Interface



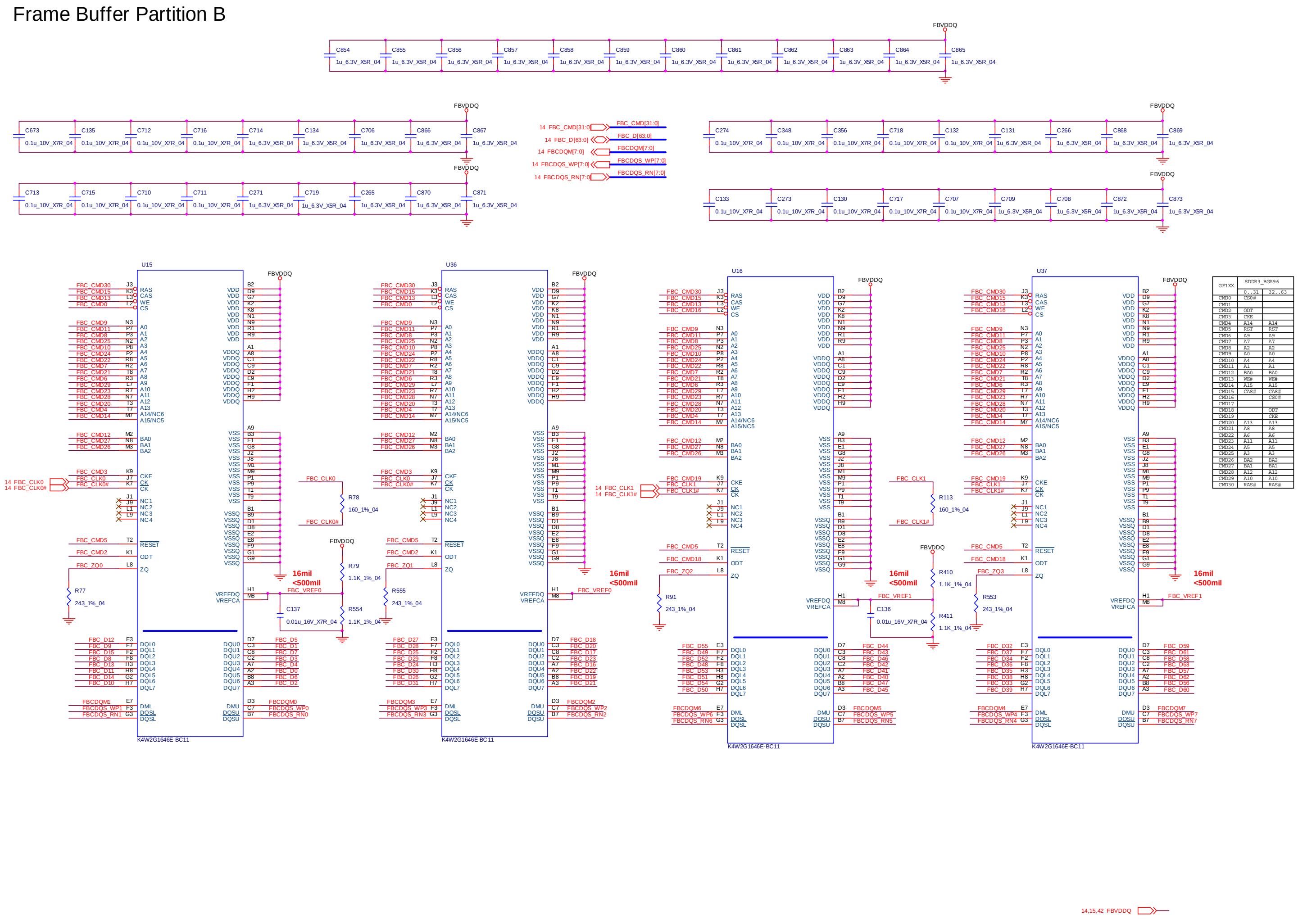
Sheet 14 of 46
VGA Frame Buffer Interface

VGA Frame Buffer A

Sheet 15 of 46
VGA Frame Buffer
A



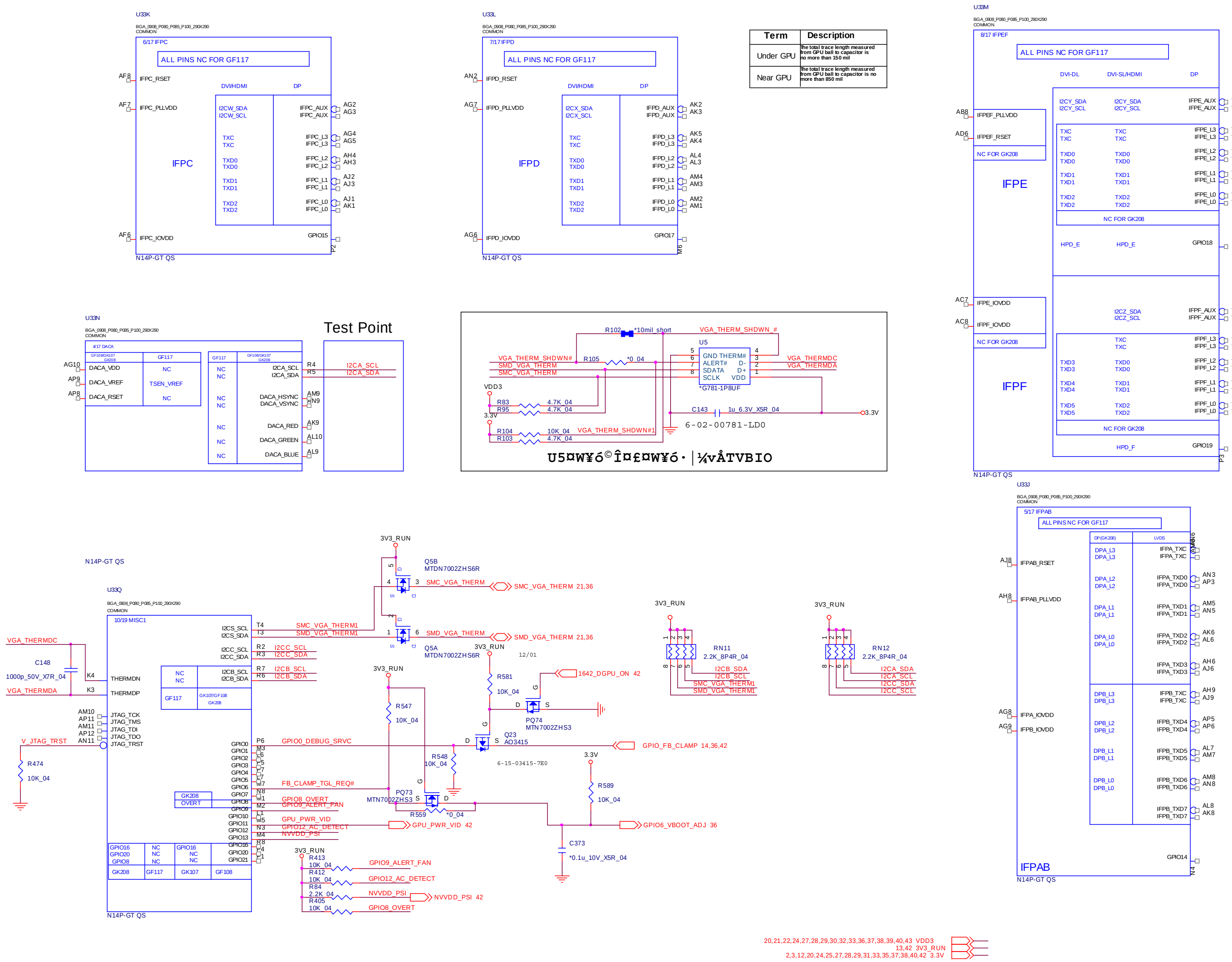
VGA Frame Buffer C



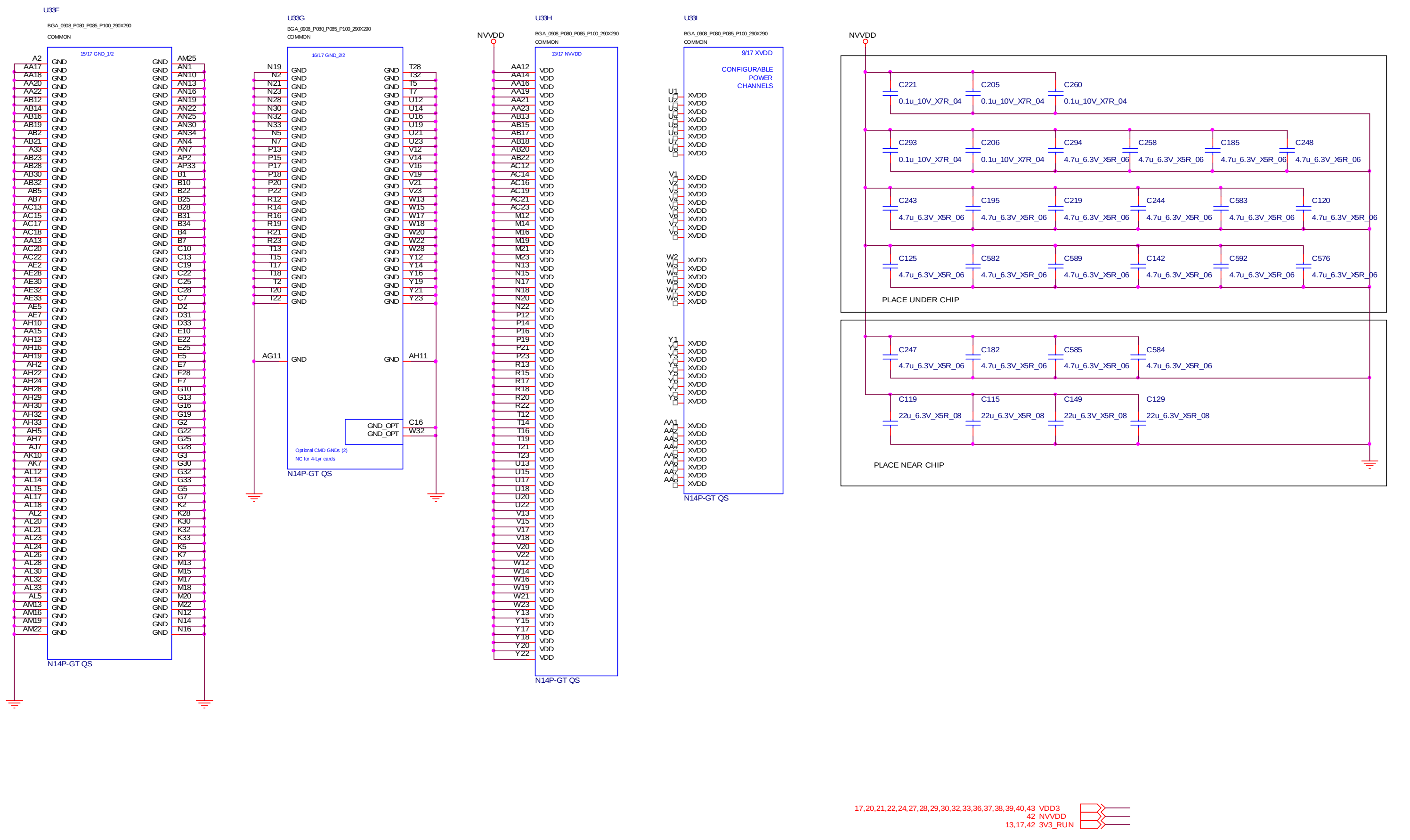
Sheet 16 of 46
VGA Frame Buffer C

VGA I/O

Sheet 17 of 46
VGA I/O



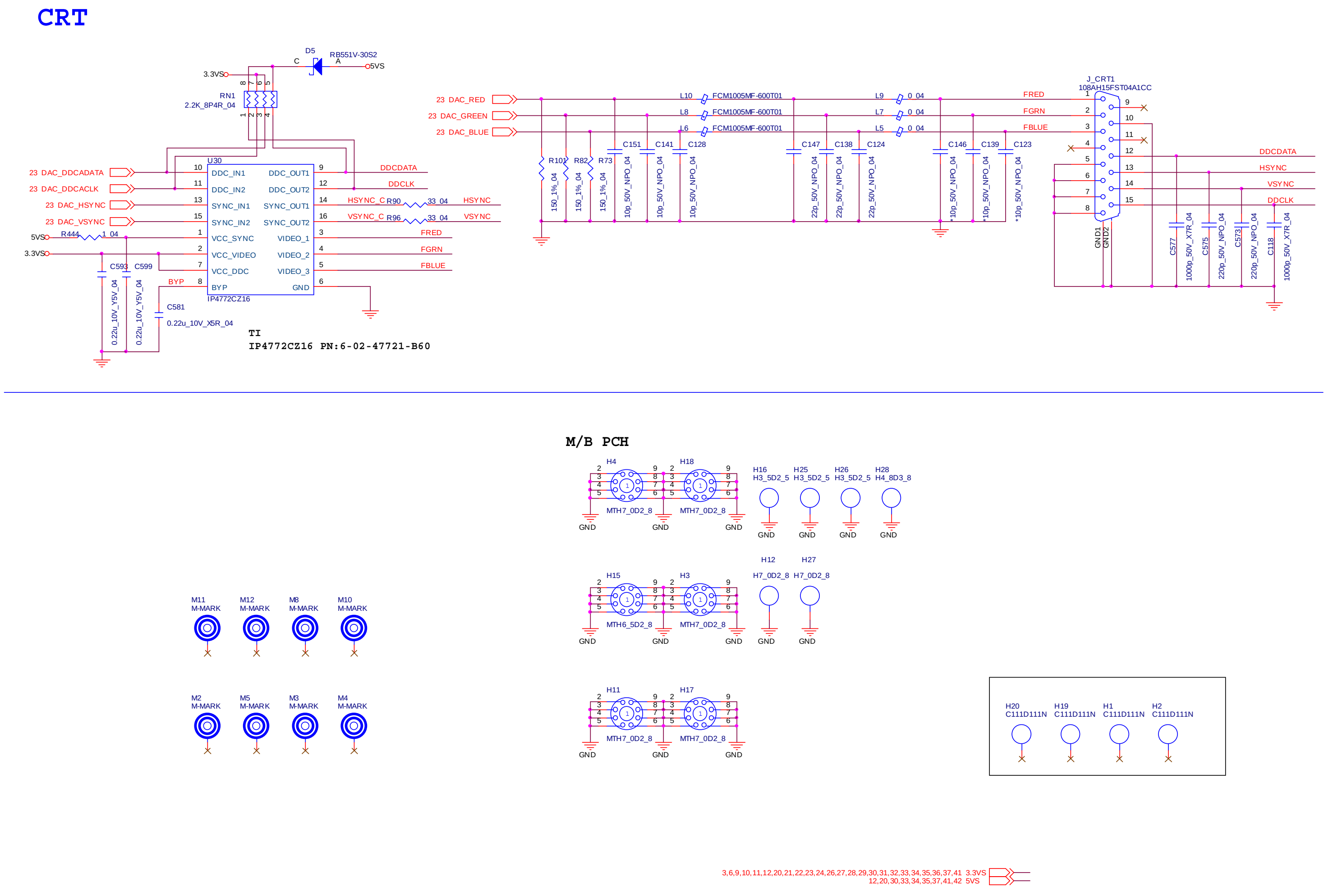
VGA NVVDD Decoupling



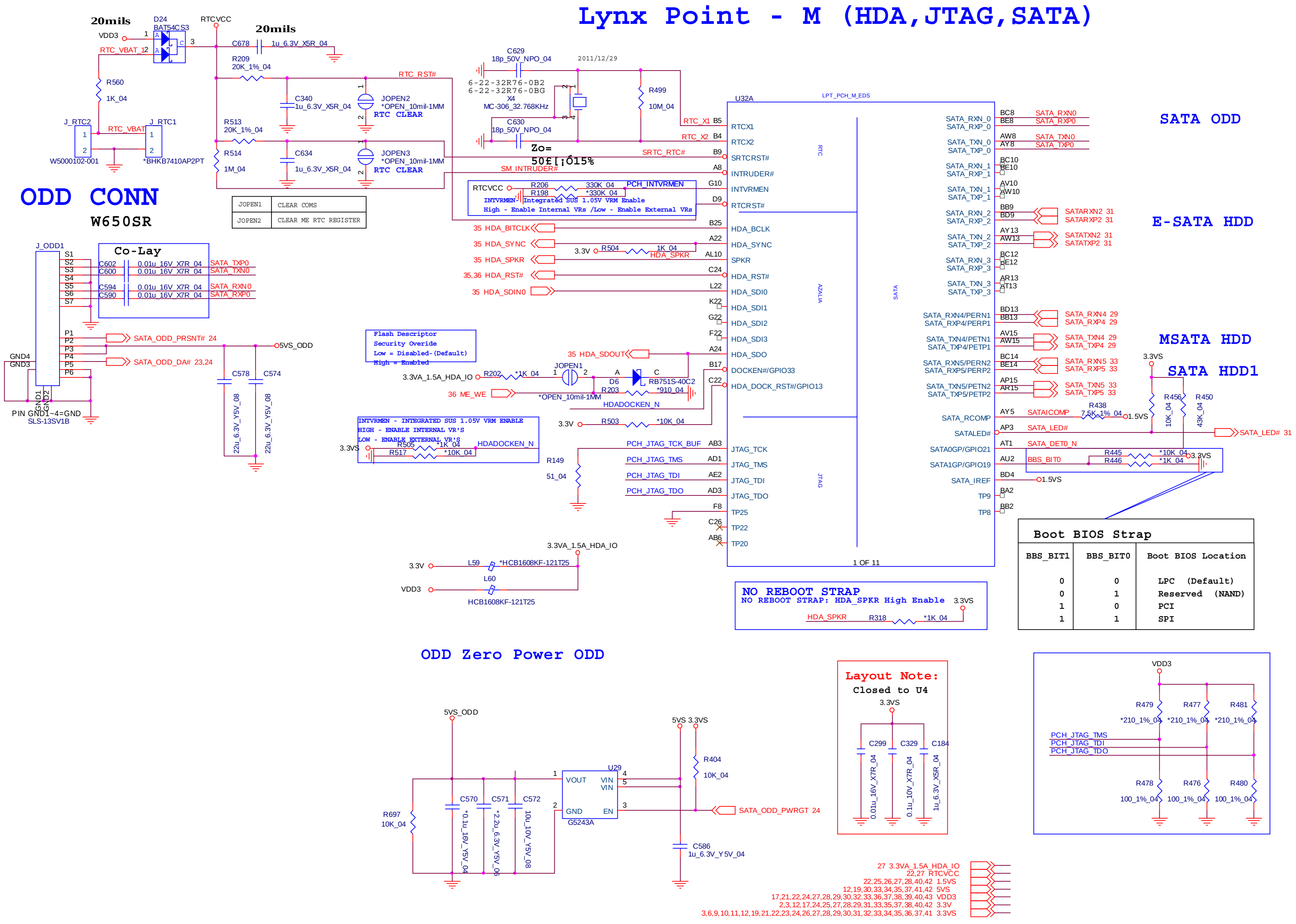
Sheet 18 of 46
VGA NVVDD
Decoupling

CRT, Holes

Sheet 19 of 46
CRT, Holes



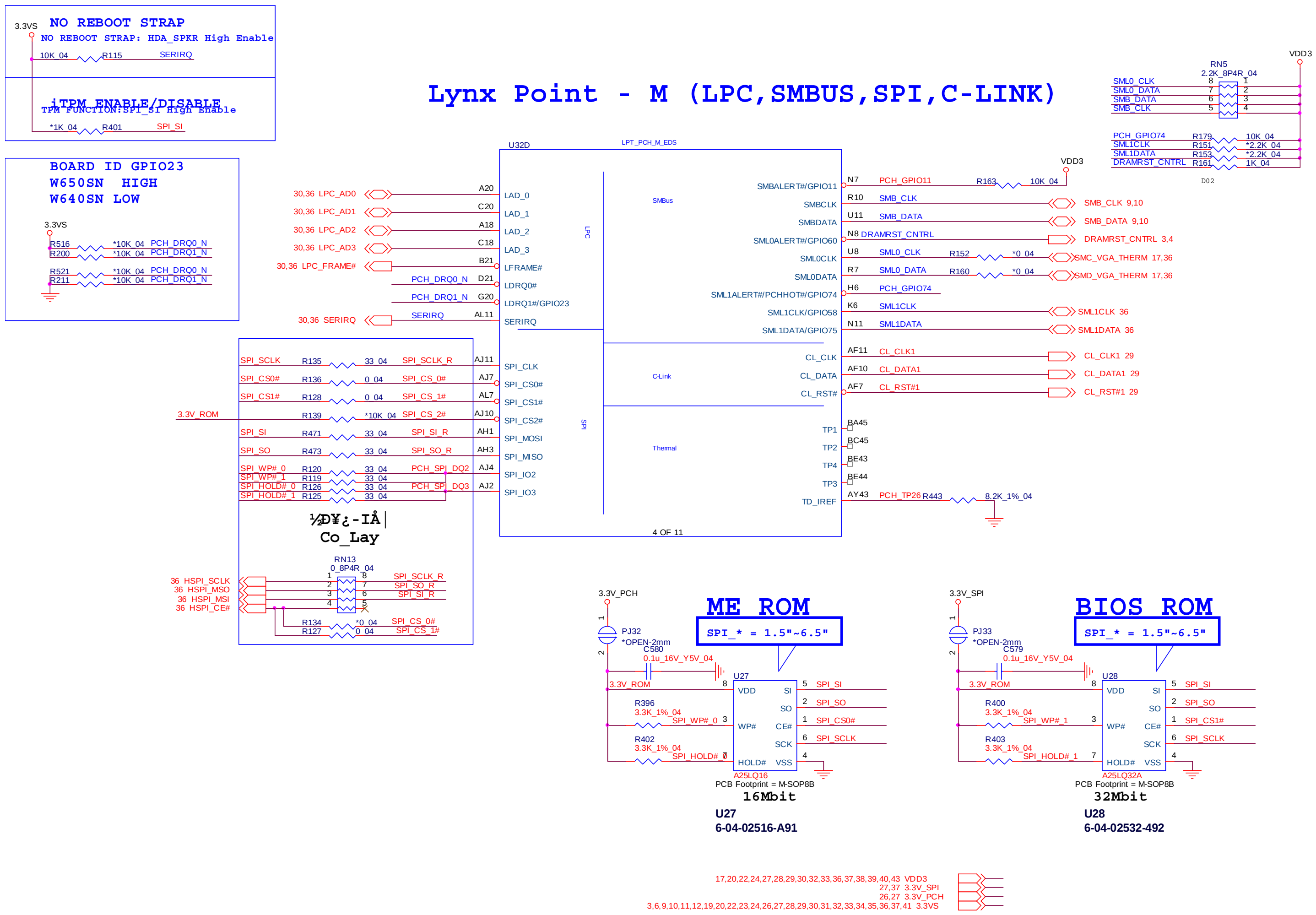
Lynx 1/9



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Lynx 1/9

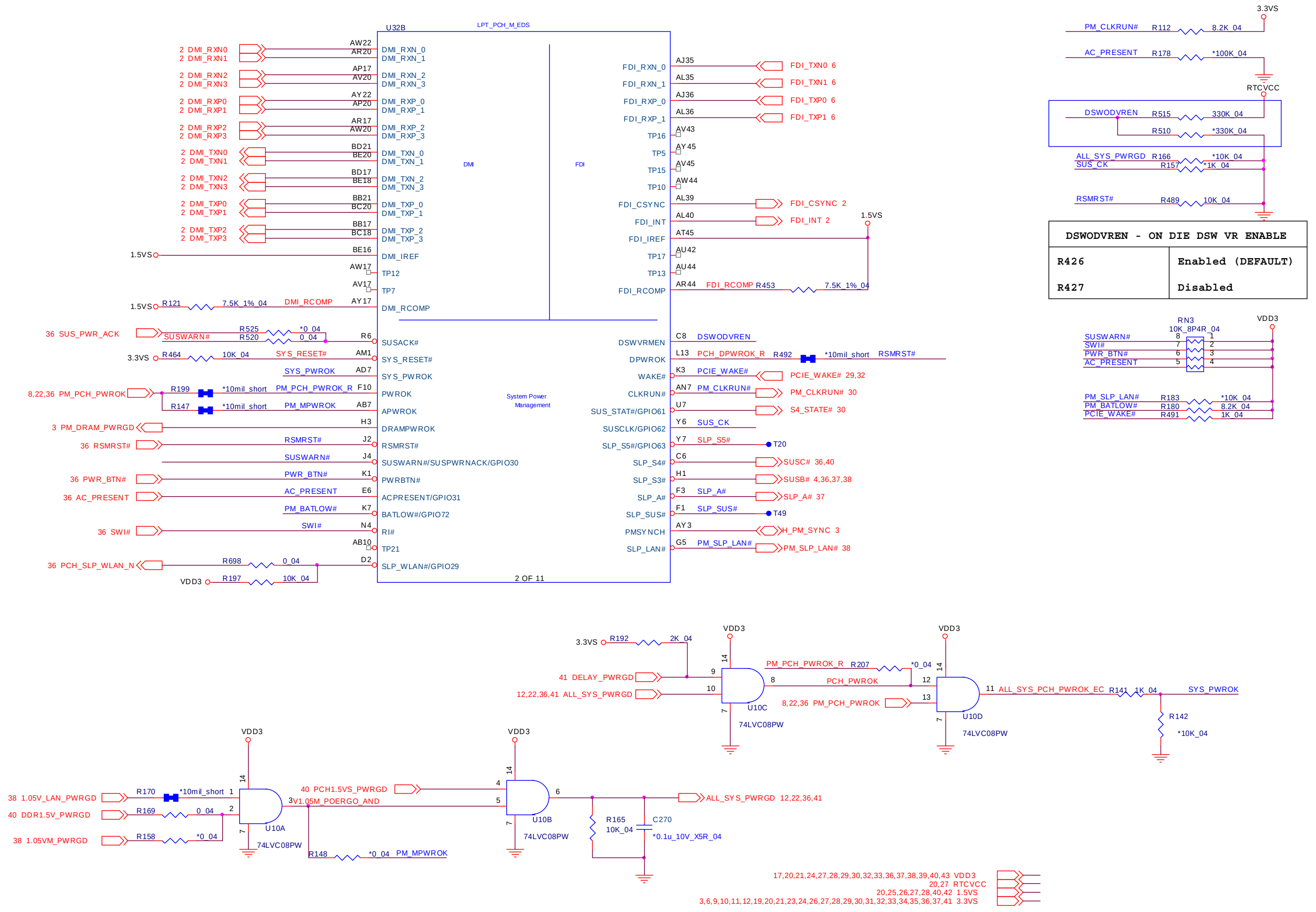
Lynx 2/9

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Lynx 2/9



Lynx 3/9

Lynx Point -M (DMI,FDI,PWRGD)



DSWODVREN - ON DIE DSW VR ENABLE	
R426	Enabled (DEFAULT)
R427	Disabled

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Lynx 3/9

Lynx 4/9

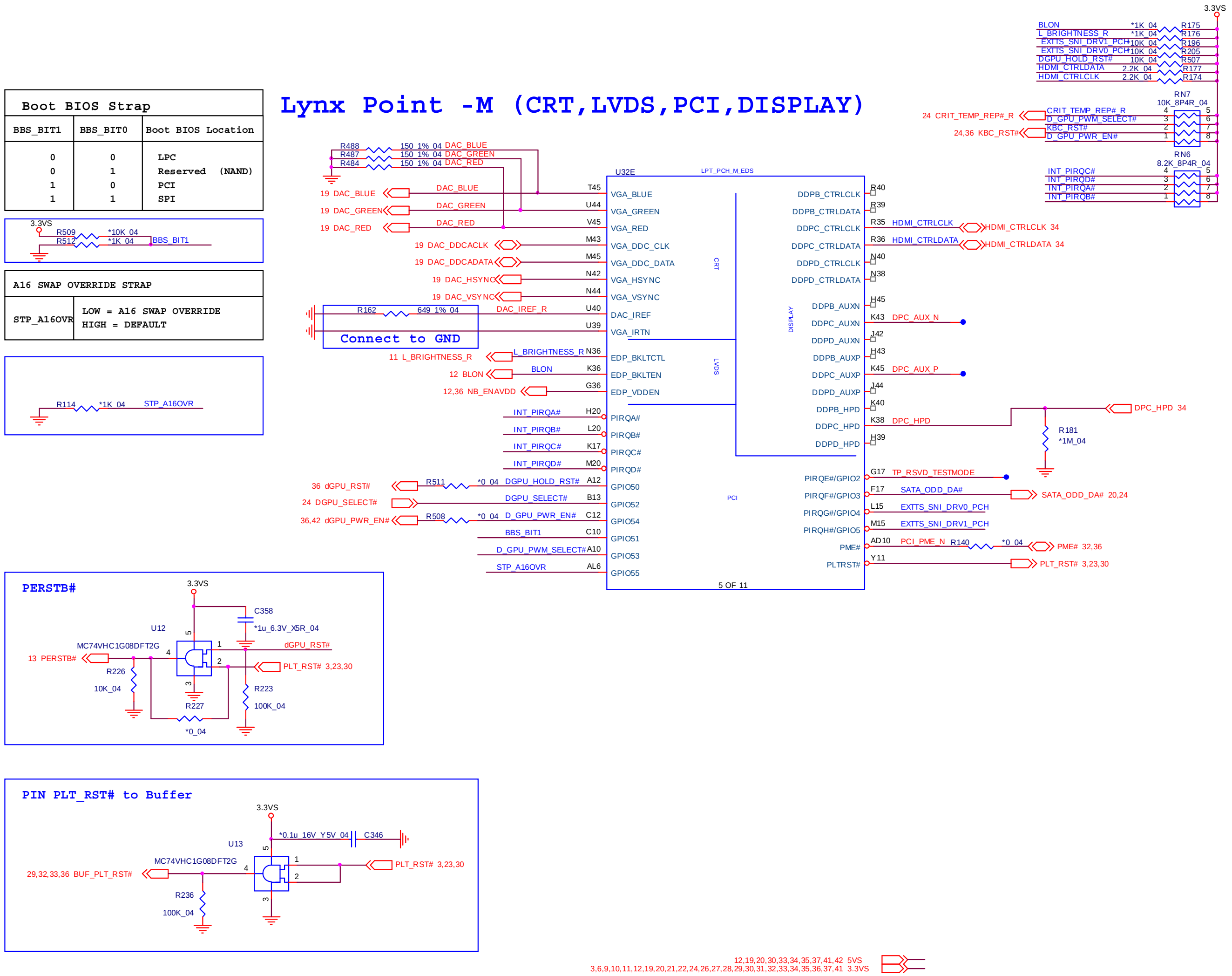
Sheet 23 of 46
Lynx 4/9

Boot BIOS Strap

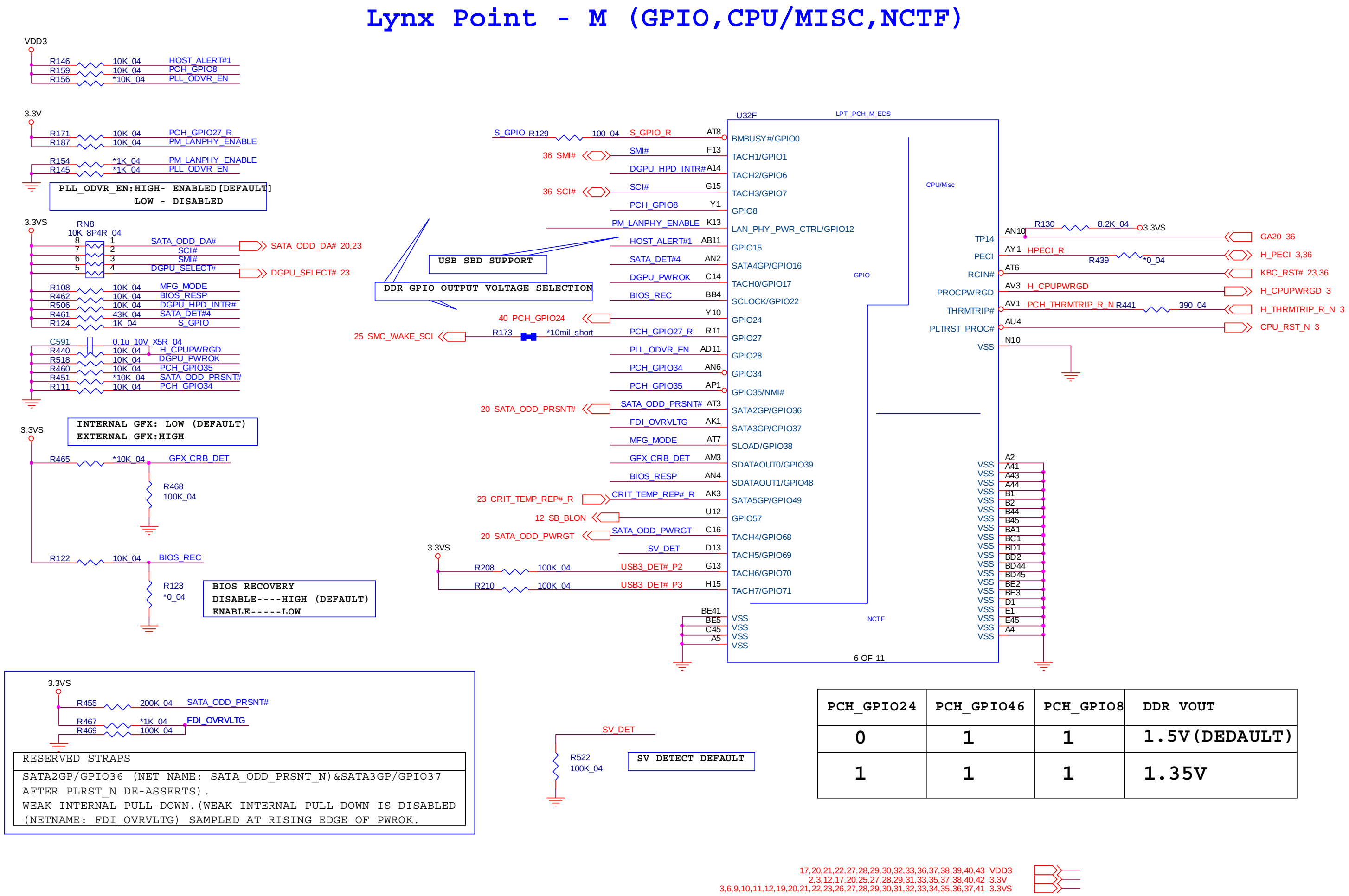
BBS_BIT1	BBS_BIT0	Boot BIOS Location
0	0	LPC
0	1	Reserved (NAND)
1	0	PCI
1	1	SPI

A16 SWAP OVERRIDE STRAP

STP_A16OVR	LOW = A16 SWAP OVERRIDE HIGH = DEFAULT



Lynx 5/9



PCH_GPIO24	PCH_GPIO46	PCH_GPIO8	DDR VOUT
0	1	1	1.5V(DEDAULT)
1	1	1	1.35V

Sheet 24 of 46
Lynx 5/9

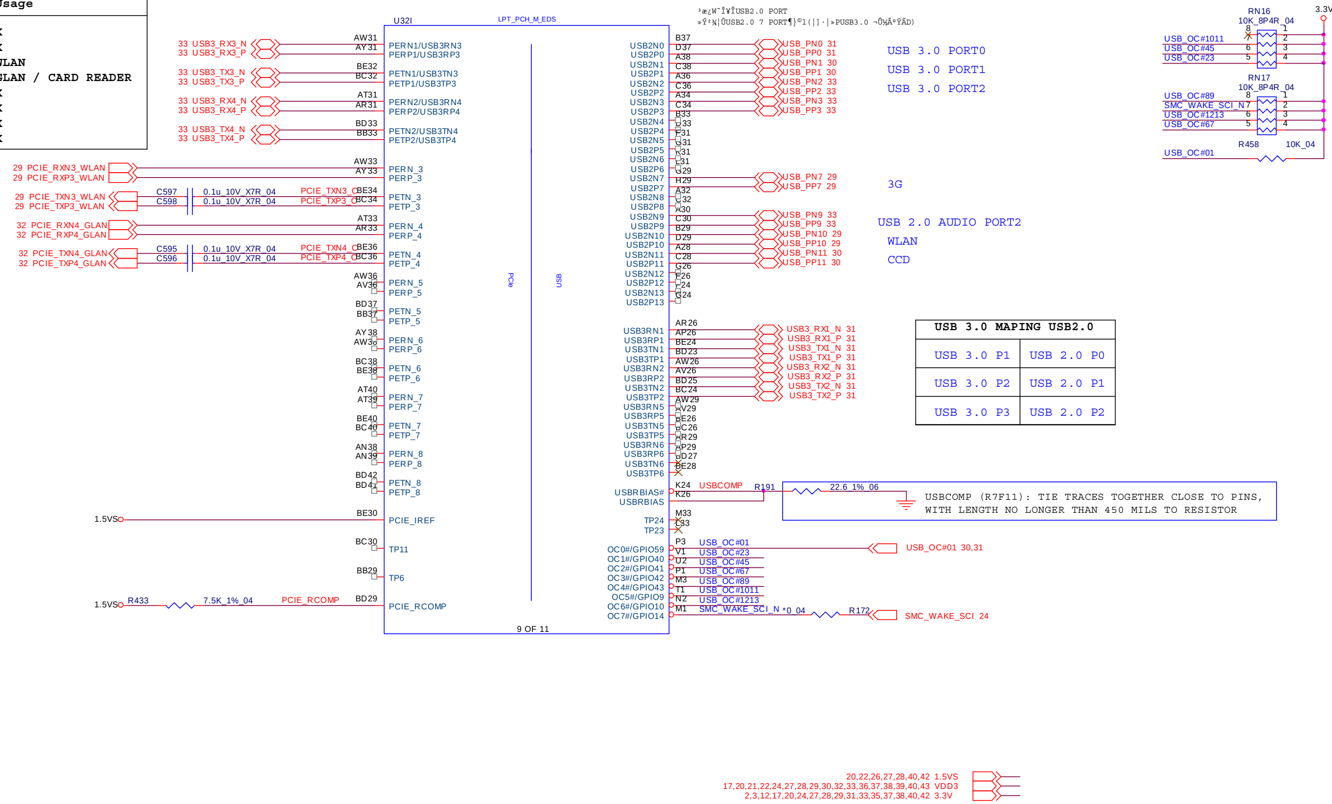
B.Schematic Diagrams

Lynx 6/9

Sheet 25 of 46
Lynx 6/9

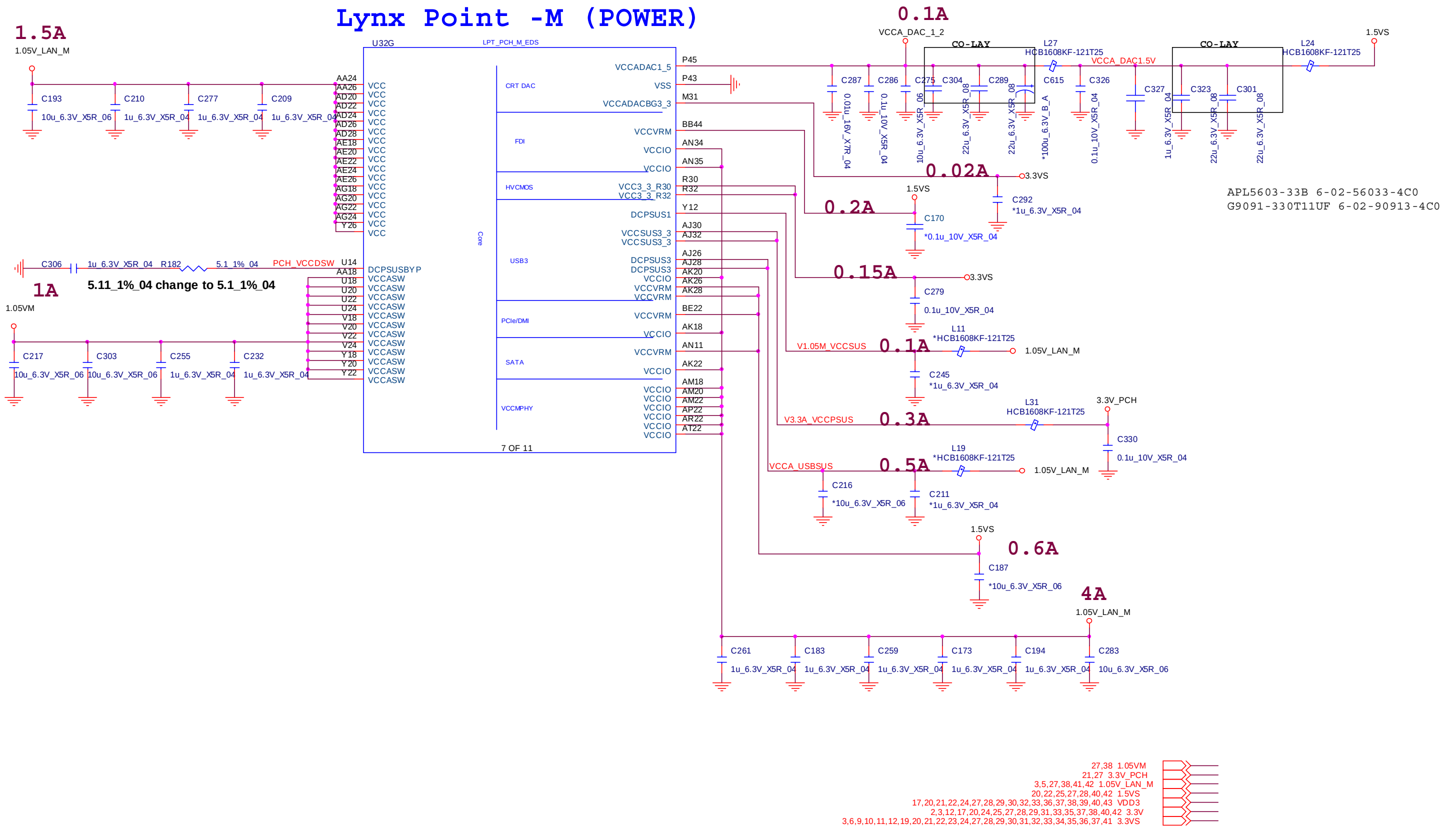
Lynx Point -M (PCIe,USB)

PCI-E x1	Usage
Lane 1	X
Lane 2	X
Lane 3	WLAN
Lane 4	GLAN / CARD READER
Lane 5	X
Lane 6	X
Lane 7	X
Lane 8	X



USB 3.0 MAPING USB2.0	
USB 3.0 P1	USB 2.0 P0
USB 3.0 P2	USB 2.0 P1
USB 3.0 P3	USB 2.0 P2

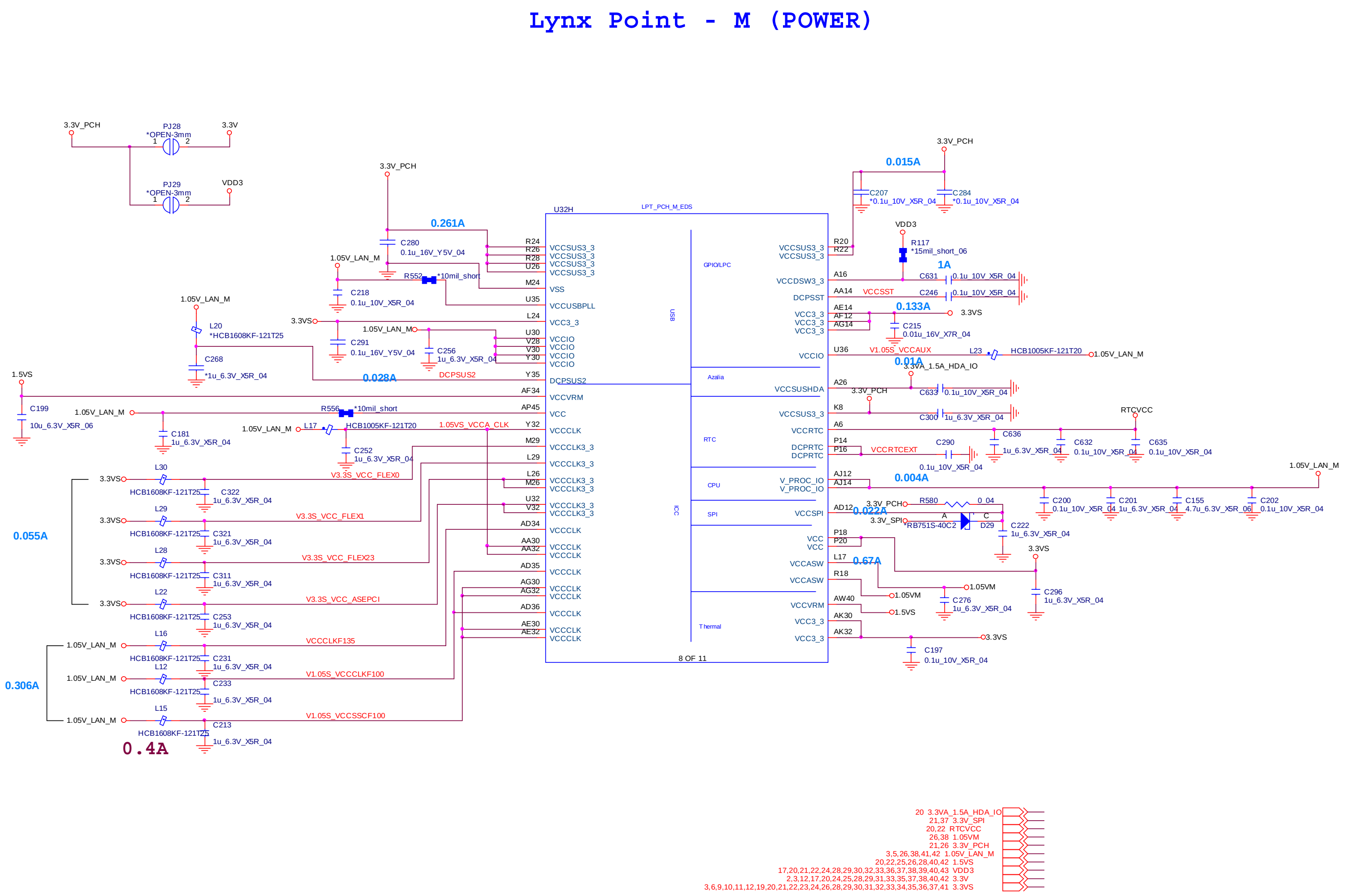
Lynx 7/9



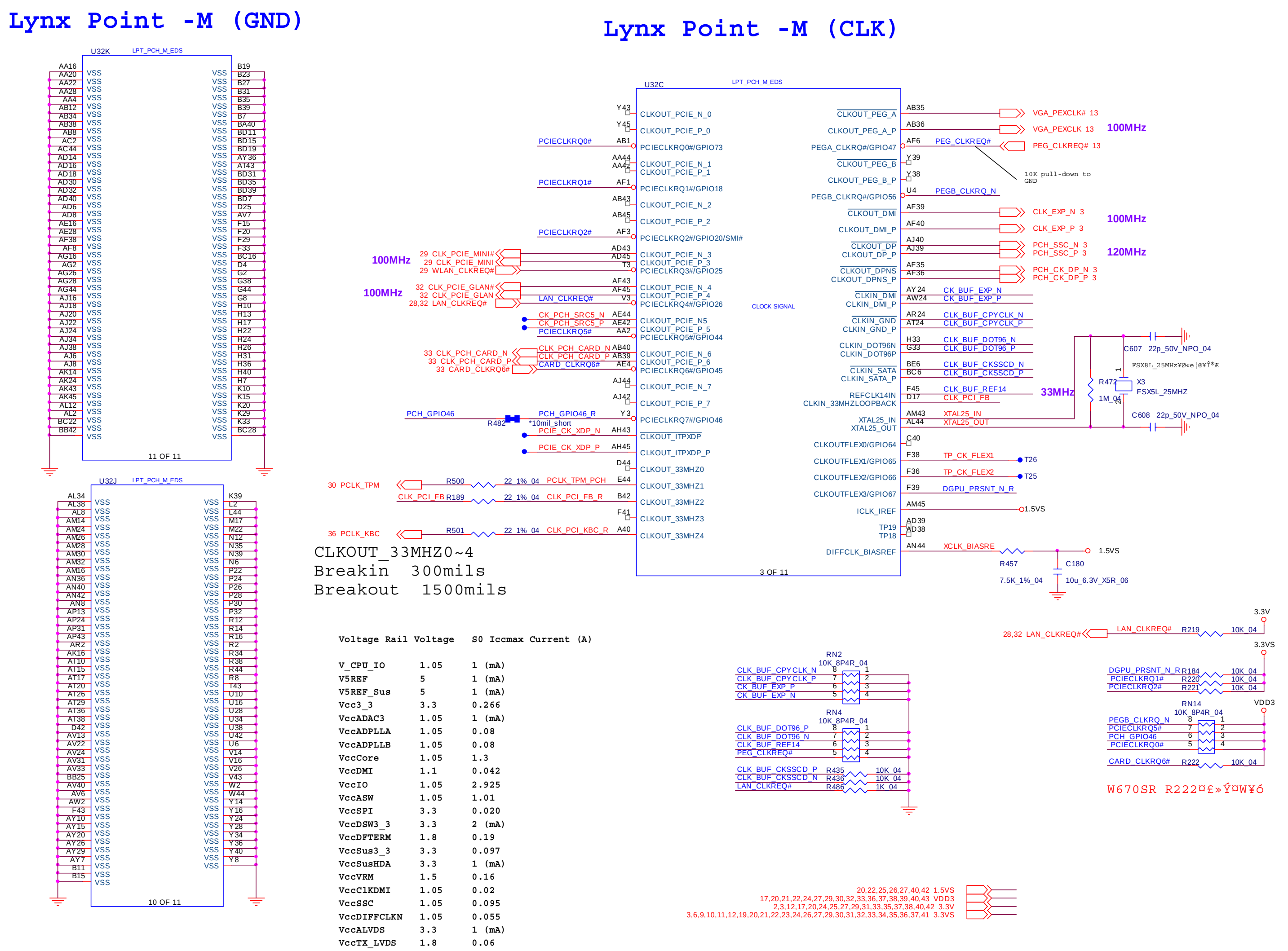
Sheet 26 of 46
Lynx 7/9

Lynx 8/9

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Lynx 8/9



Lynx 9/9

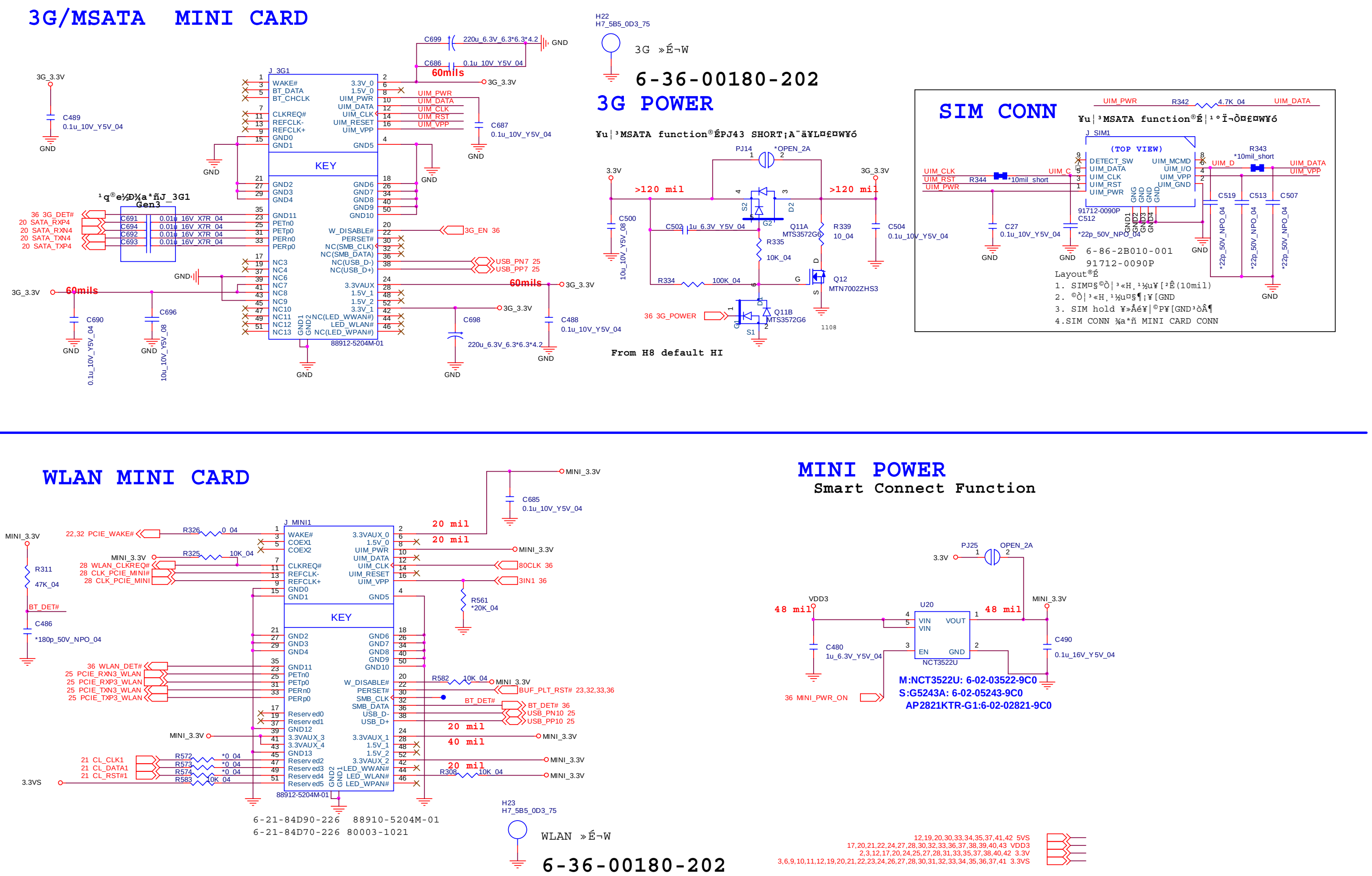


Voltage Rail	Voltage	S0 Iccmax Current (A)
V_CPU_IO	1.05	1 (mA)
V5REF	5	1 (mA)
V5REF_Sus	5	1 (mA)
Vcc3_3	3.3	0.266
VccADAC3	1.05	1 (mA)
VccADPLLA	1.05	0.08
VccADPLLB	1.05	0.08
VccCore	1.05	1.3
VccDMI	1.1	0.042
VccIO	1.05	2.925
VccASW	1.05	1.01
VccSPI	3.3	0.020
VccDSW3_3	3.3	2 (mA)
VccDFTERM	1.8	0.19
VccSus3_3	3.3	0.097
VccSusHDA	3.3	1 (mA)
VccVRM	1.5	0.16
VccClKDMI	1.05	0.02
VccSSC	1.05	0.095
VccDIFFCLKN	1.05	0.055
VccALVDS	3.3	1 (mA)
VccTX_LVDS	1.8	0.06

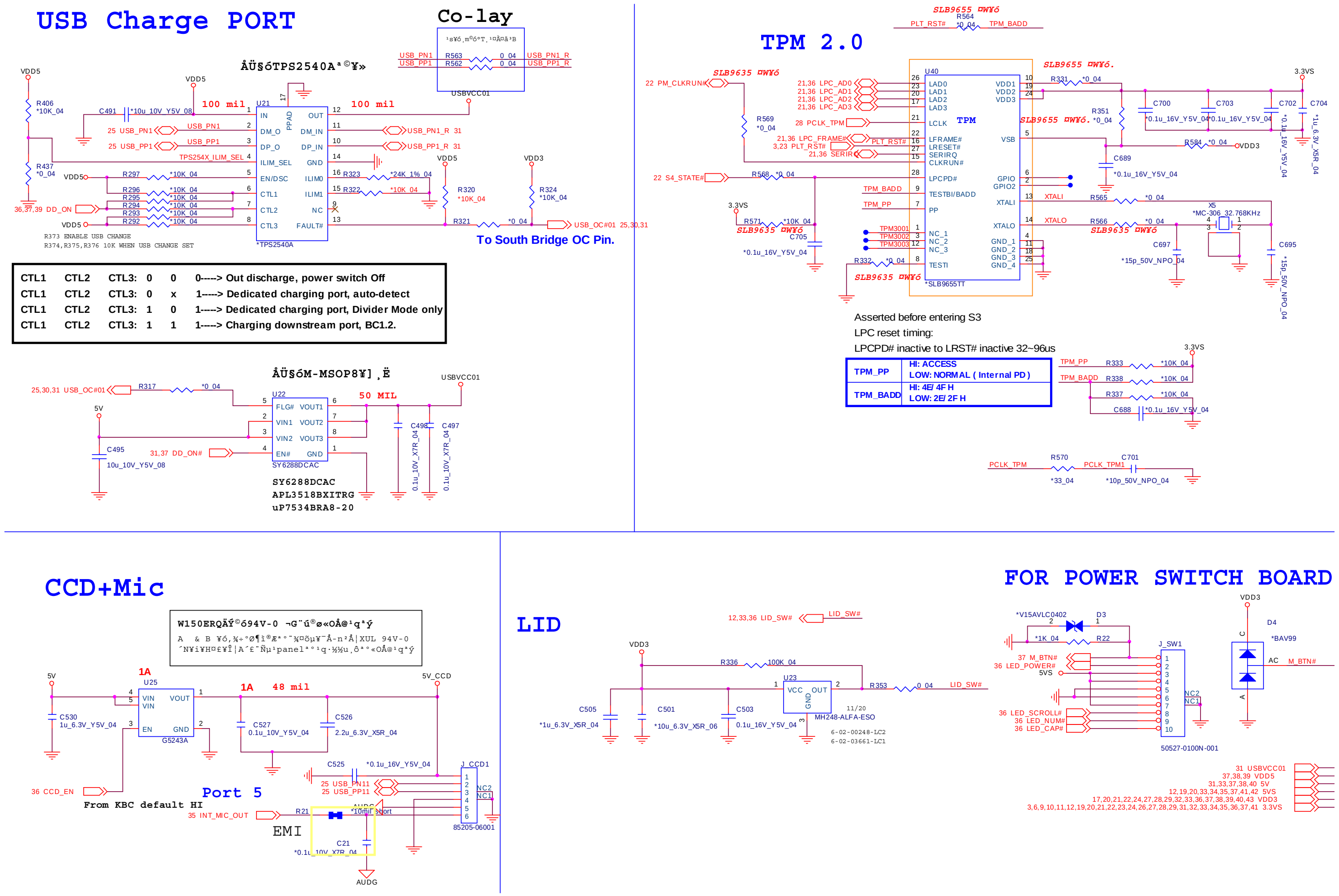
Sheet 28 of 46
Lynx 9/9

3G, WLAN, PCIE, CON

Sheet 29 of 46
3G, WLAN, PCIE, CON



USB Charge, CCD, TPM, Power Con

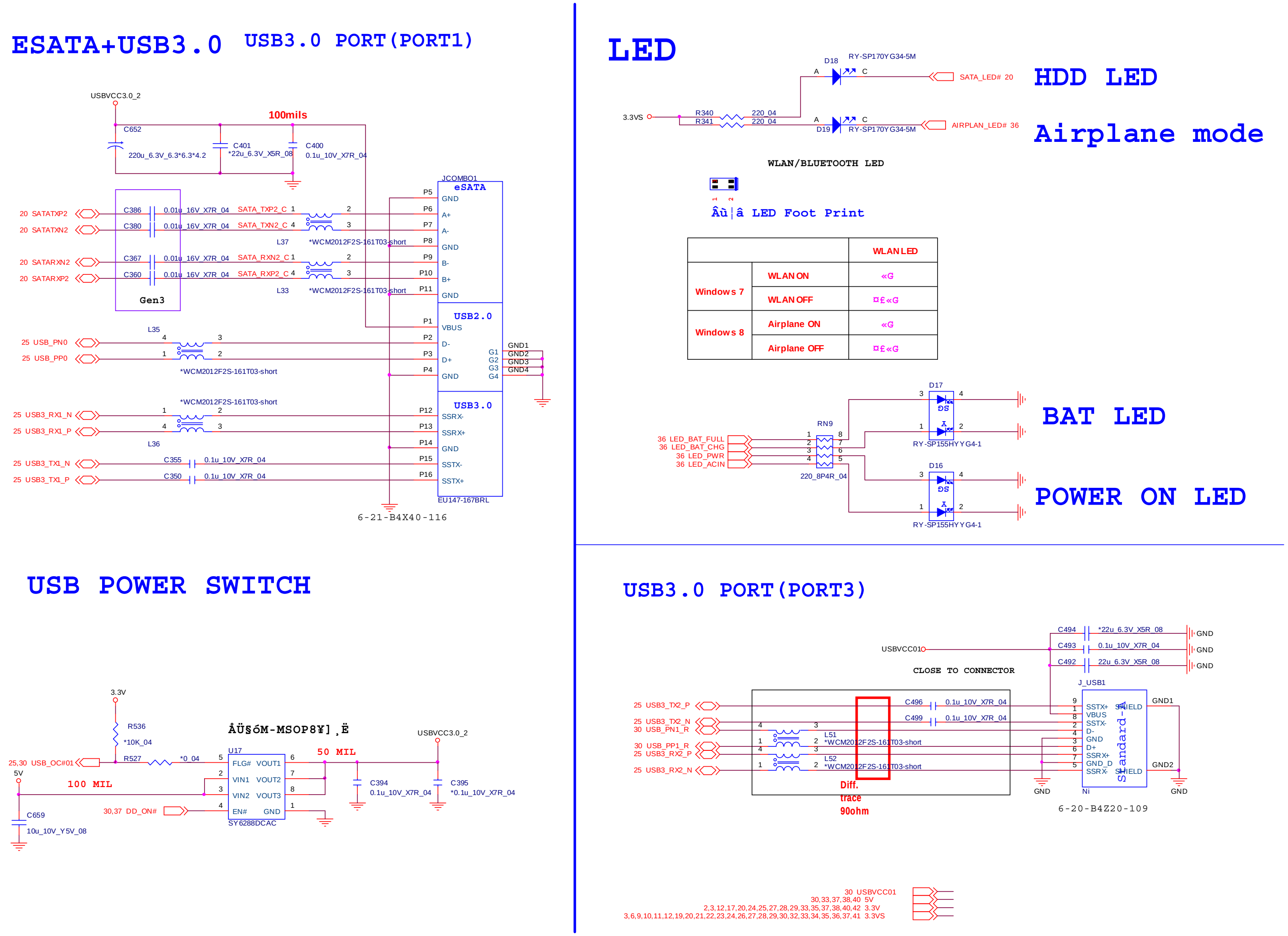


CTL1	CTL2	CTL3:	0	0	0----> Out discharge, power switch Off
CTL1	CTL2	CTL3:	0	x	1----> Dedicated charging port, auto-detect
CTL1	CTL2	CTL3:	1	0	1----> Asserted charging port, Divider Mode only
CTL1	CTL2	CTL3:	1	1	1----> Charging downstream port, BC1.2.

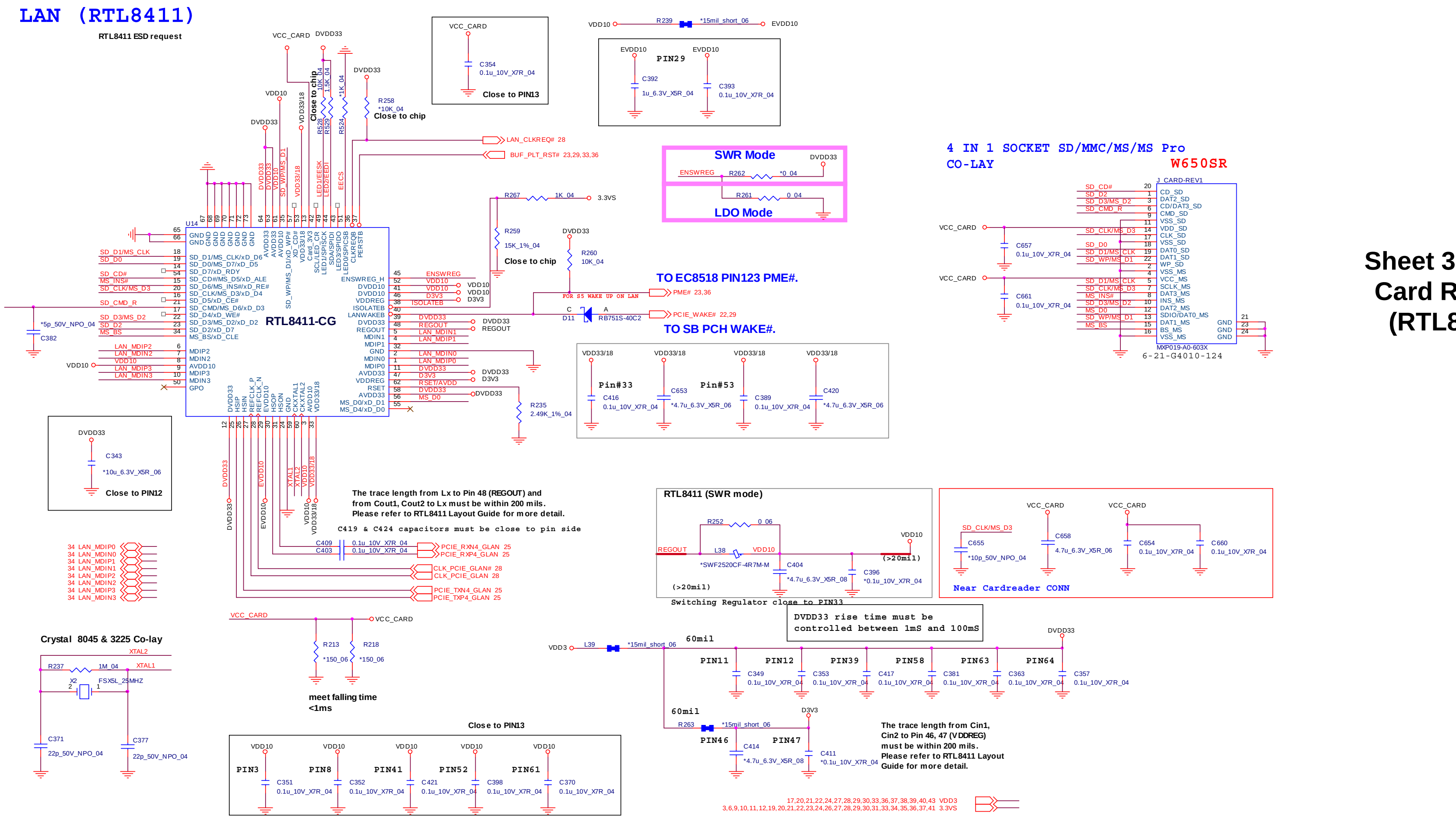
Sheet 30 of 46
USB Charge, CCD,
TPM, Power Con

eSATA/USB3.0, LED

Sheet 31 of 46
eSATA/USB3.0,
LED

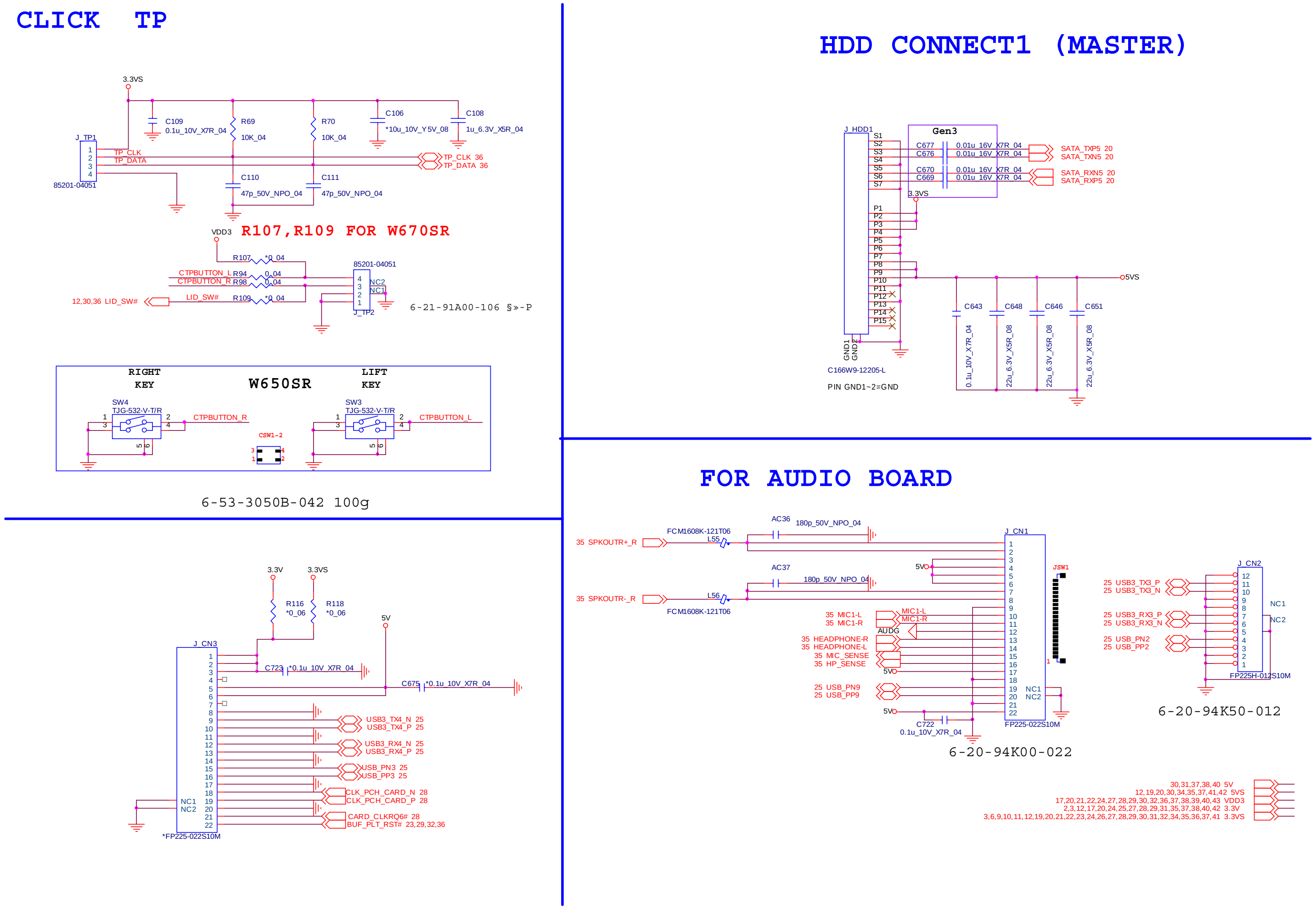


Card Reader (RTL8411)

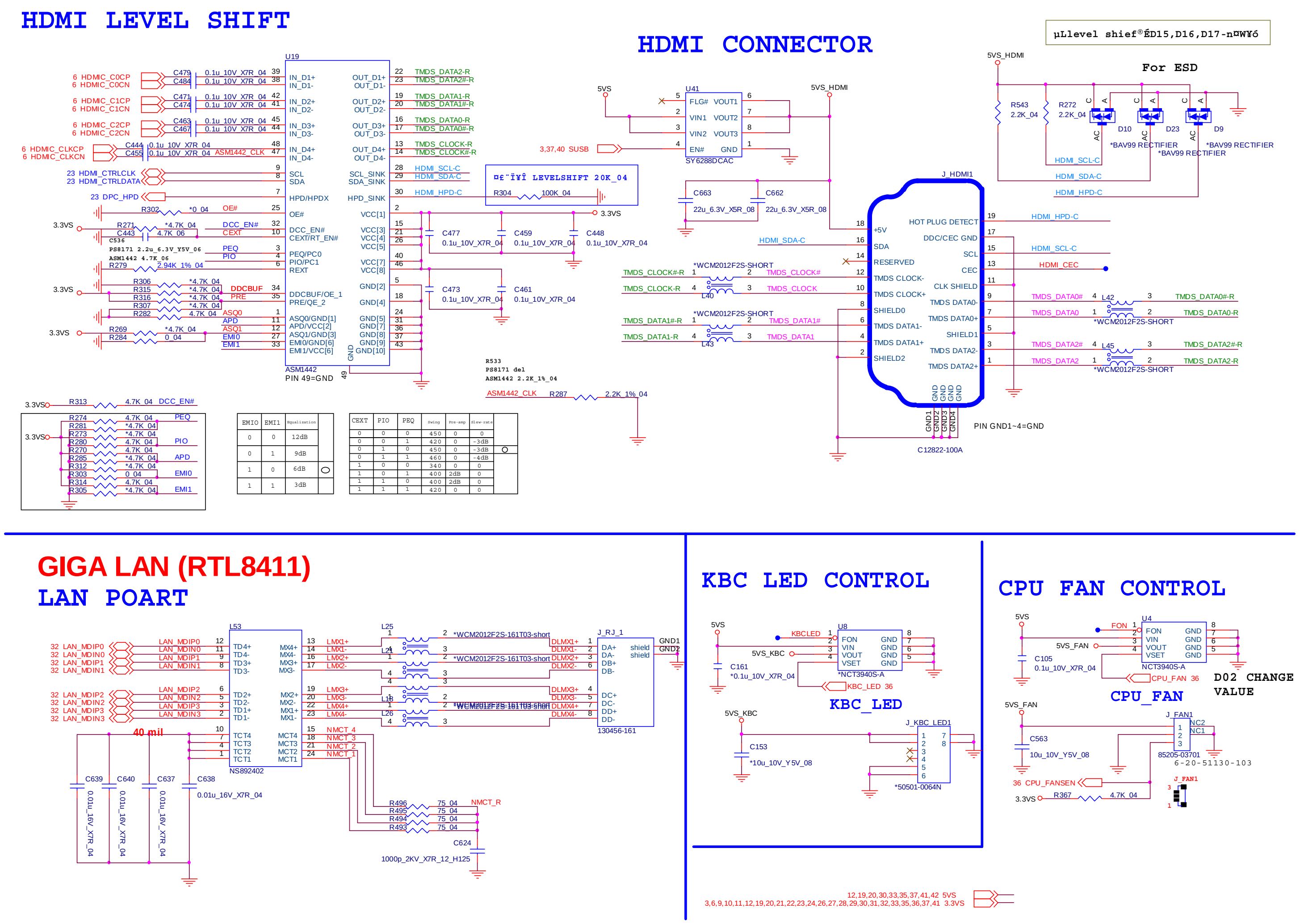


HDD, TP, Audio, USB

Sheet 33 of 46
HDD, TP, Audio,
USB



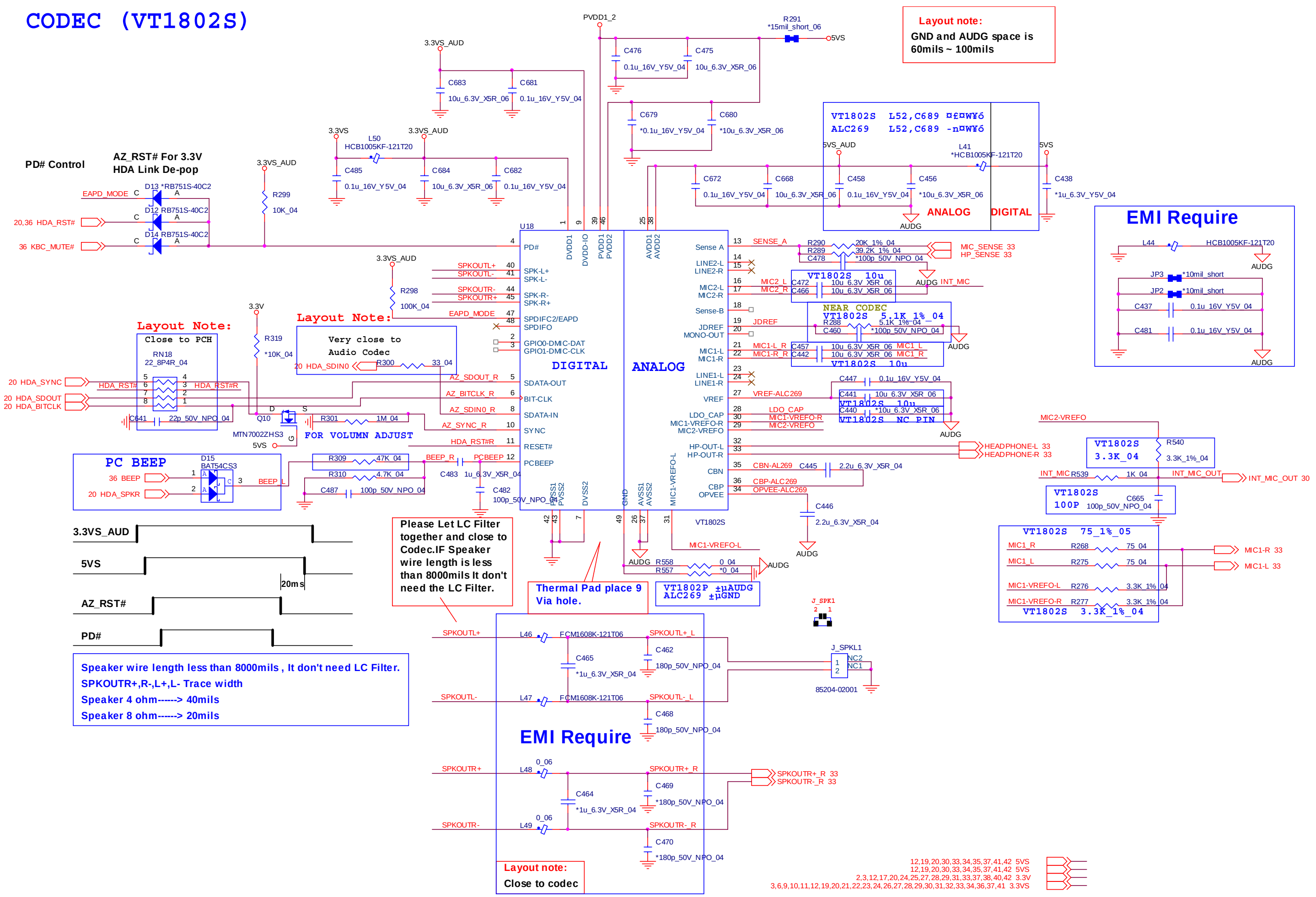
HDMI, RJ45, Fan, KBC, LED



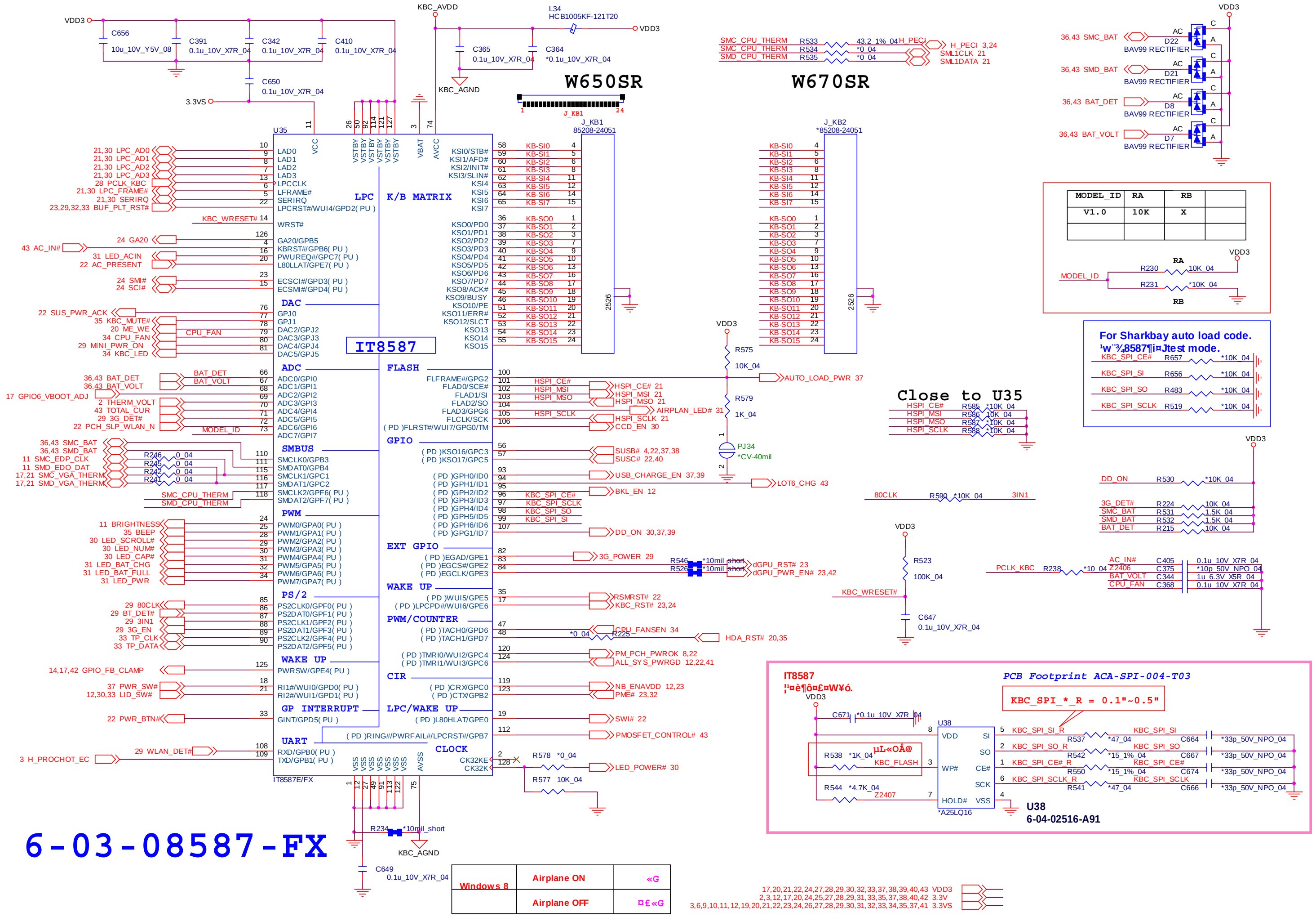
Sheet 34 of 46
HDMI, RJ45, Fan,
KBC, LED

AUDIO CODEC VT1802S

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AUDIO CODEC
VT1802S



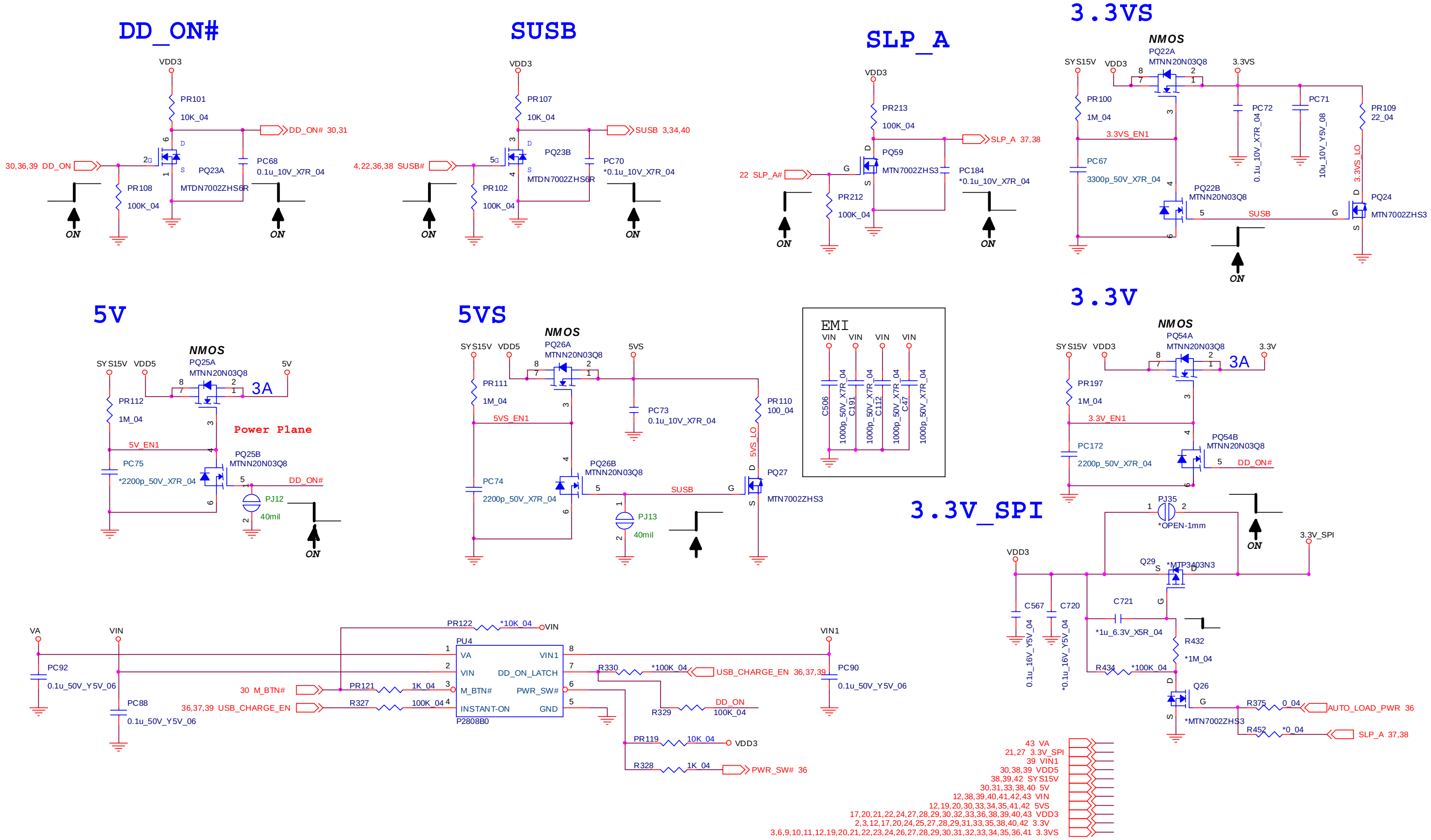
KBC-ITE IT8587



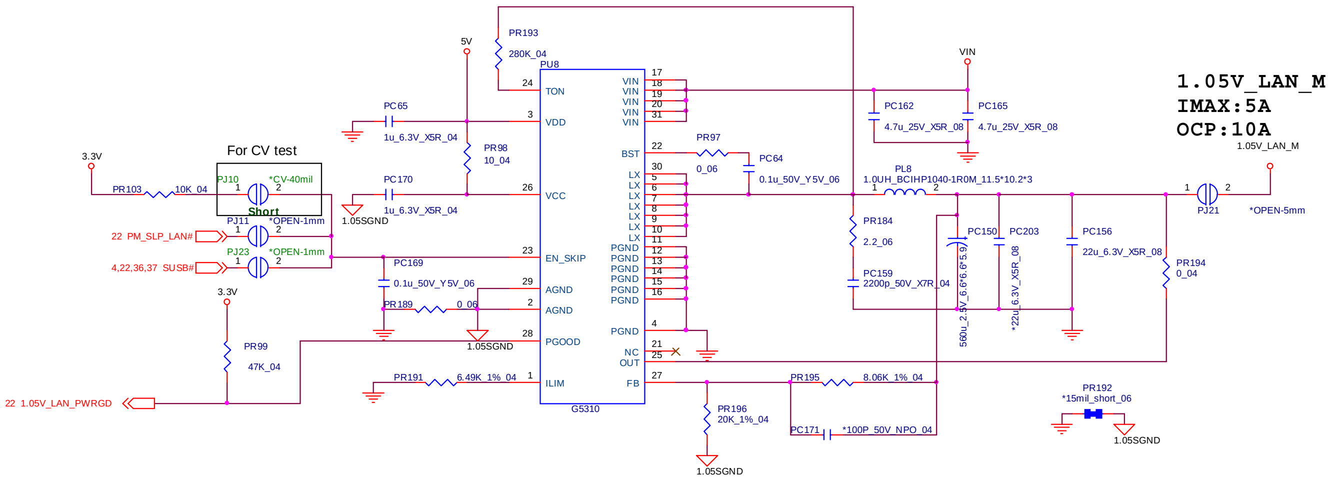
Sheet 36 of 46
KBC-ITE IT8587

5VS, 3VS, 3.3VM, 5VM

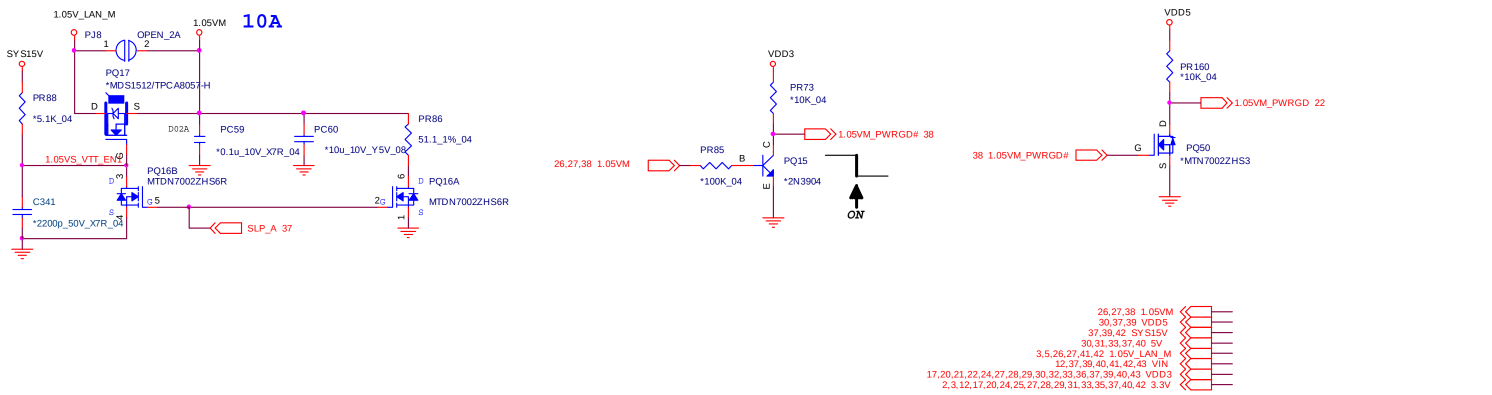
Sheet 37 of 46
5VS, 3VS, 3.3VM, 5VM



1.05V



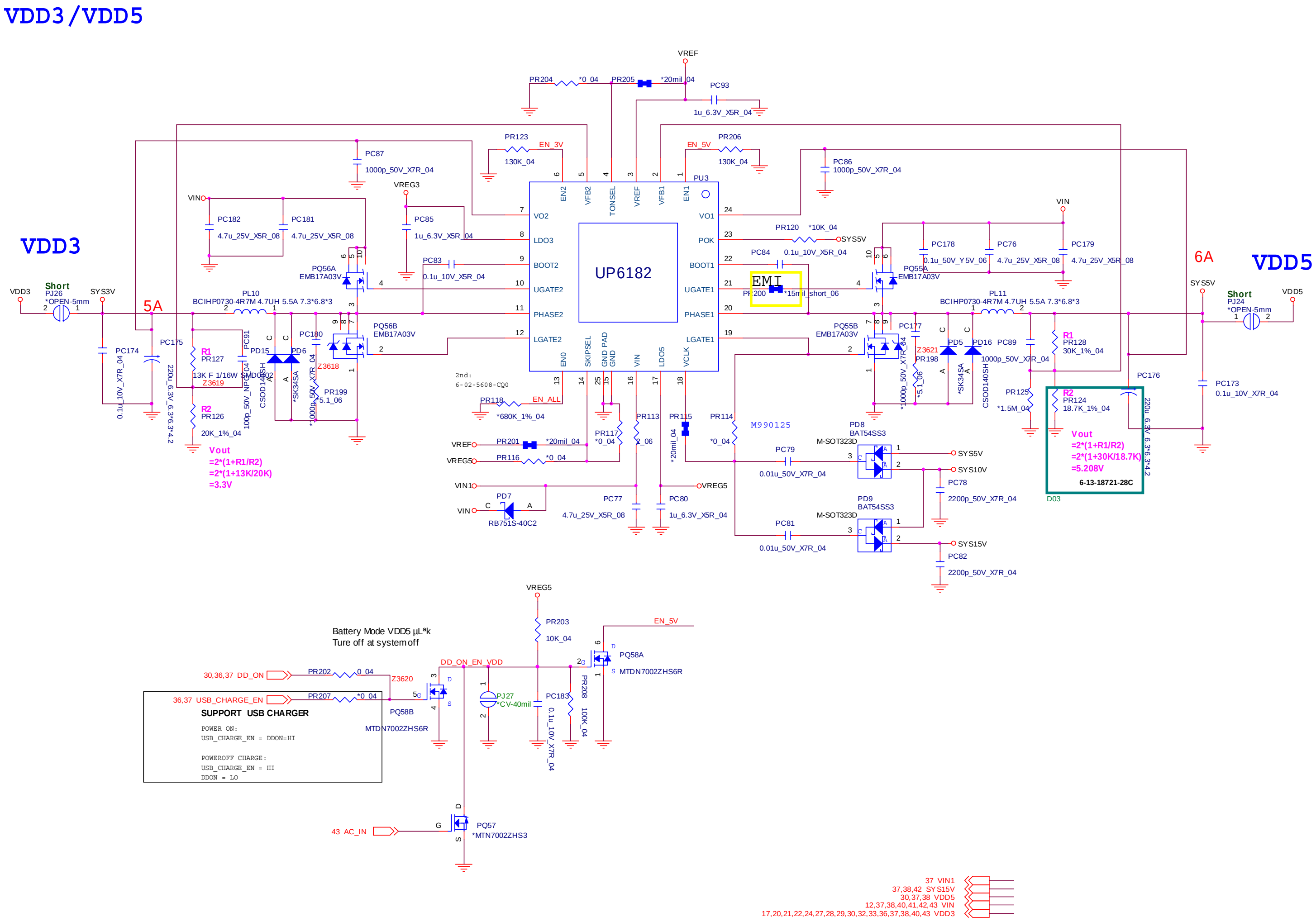
1.05VM



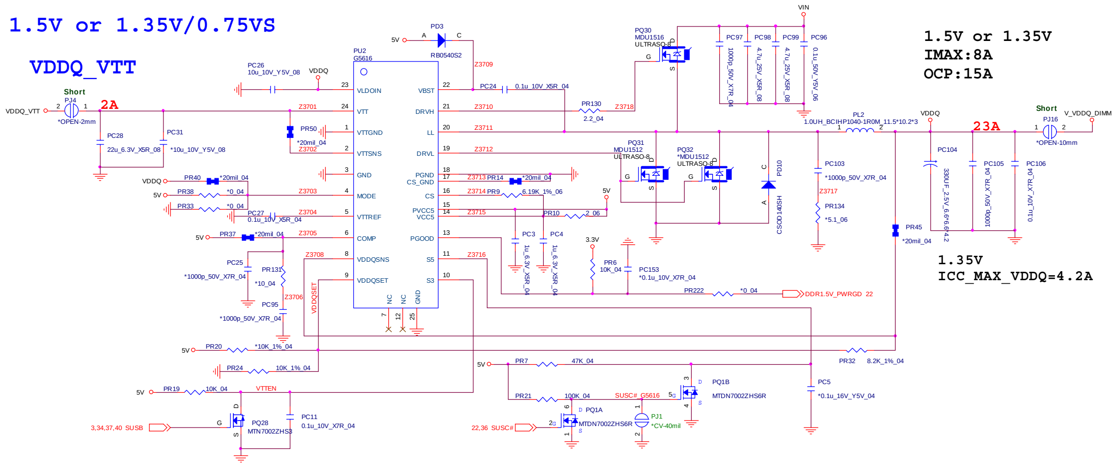
Sheet 38 of 46
1.05V

VDD3, VDD5

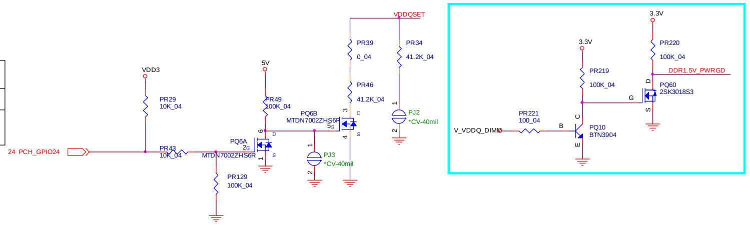
Sheet 39 of 46
VDD3, VDD5

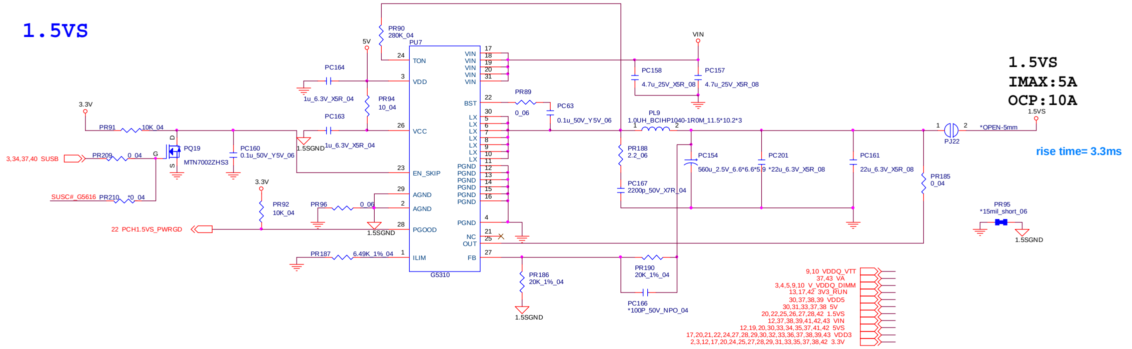


1.5V or 1.35V / 0.75VS, 1.5VS



PCH_GPIO24	PCH_GPIO46	PCH_GPIO8	DDR VOUT
0	1	1	1.5V(DEDAULT)
1	1	1	1.35V

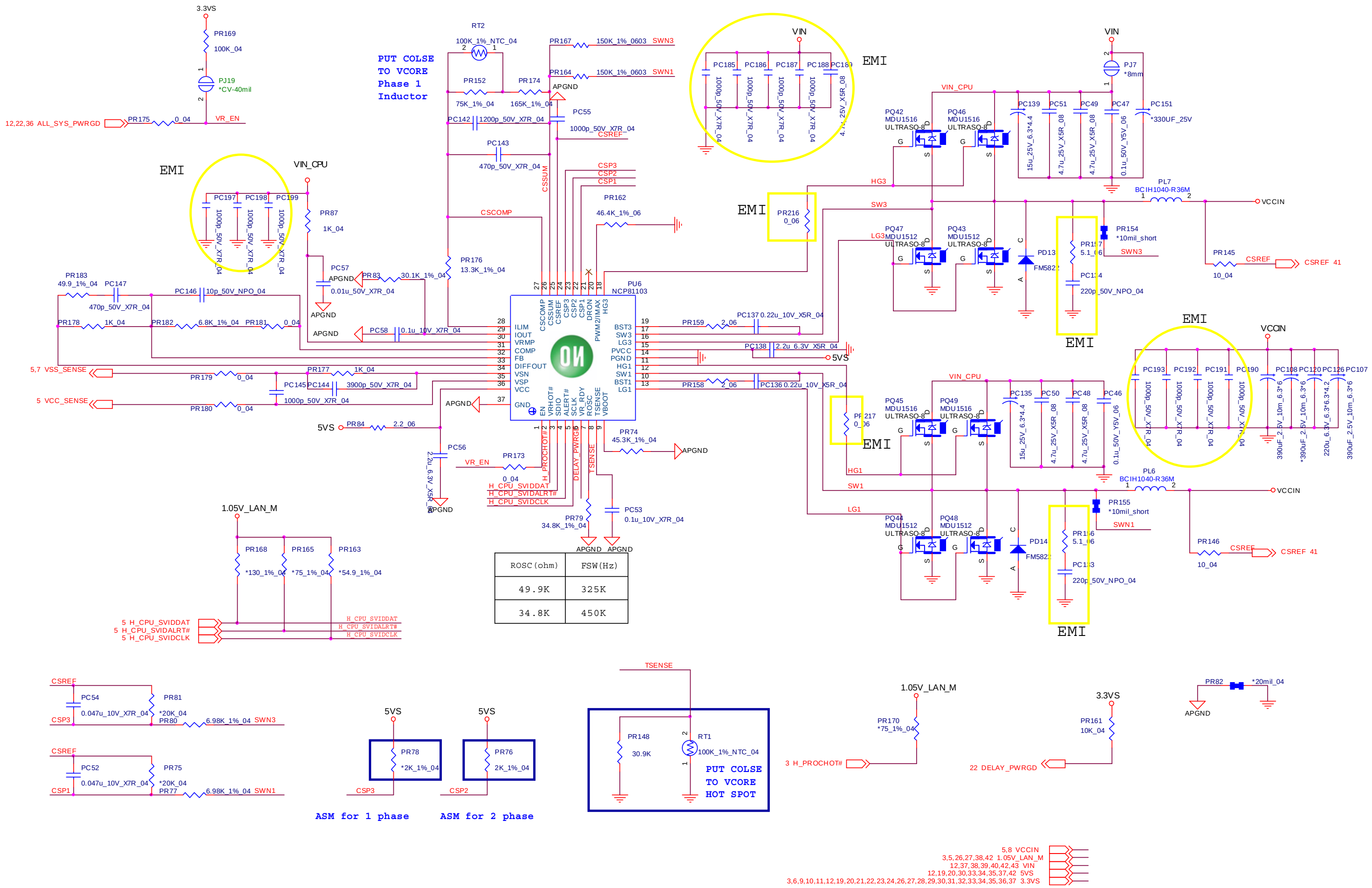




Sheet 40 of 46
1.5V or 1.35V /
0.75VS, 1.5VS

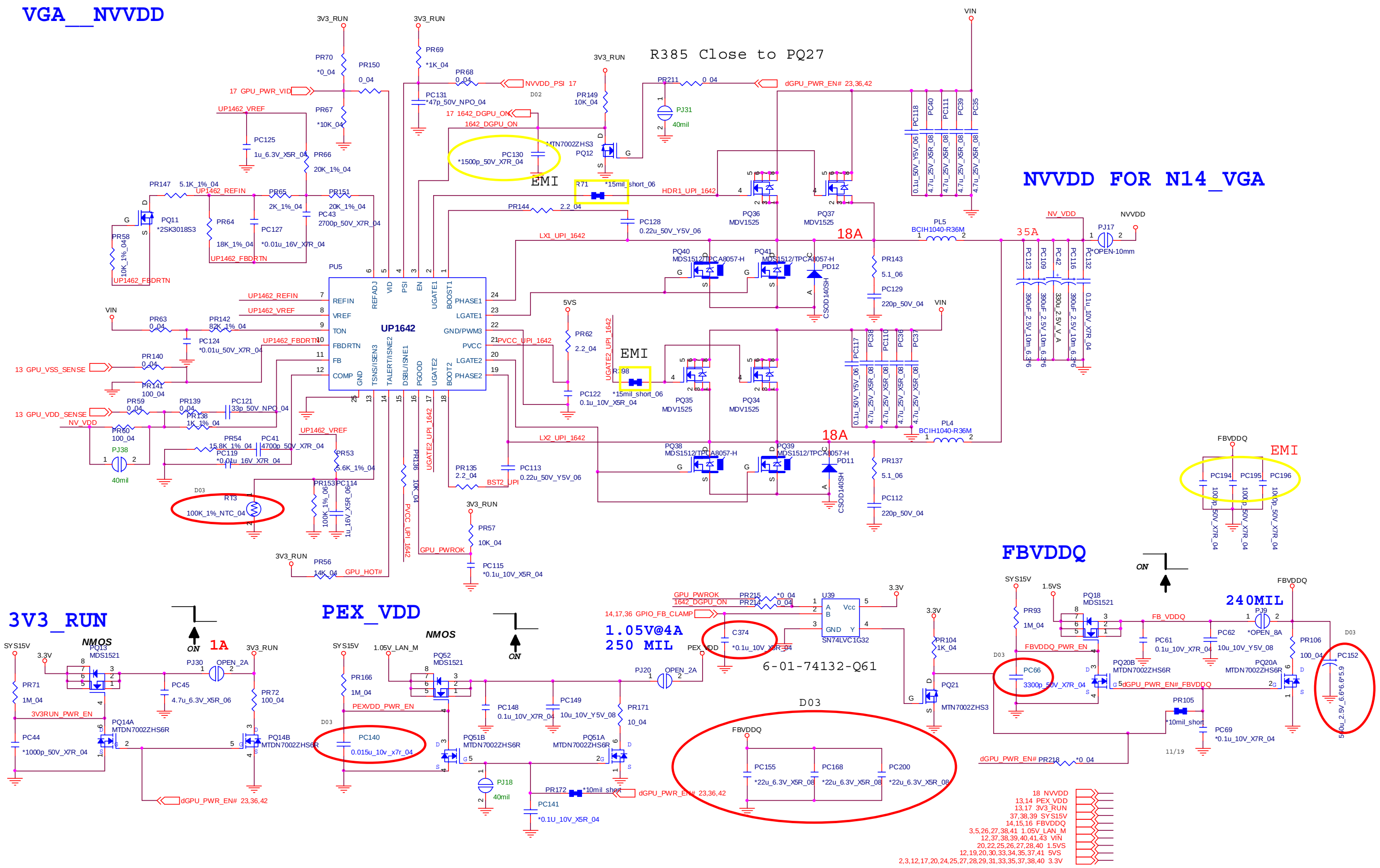
POWER VCORE

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POWER VCORE



ROSC(ohm)	FSW(Hz)
49.9K	325K
34.8K	450K

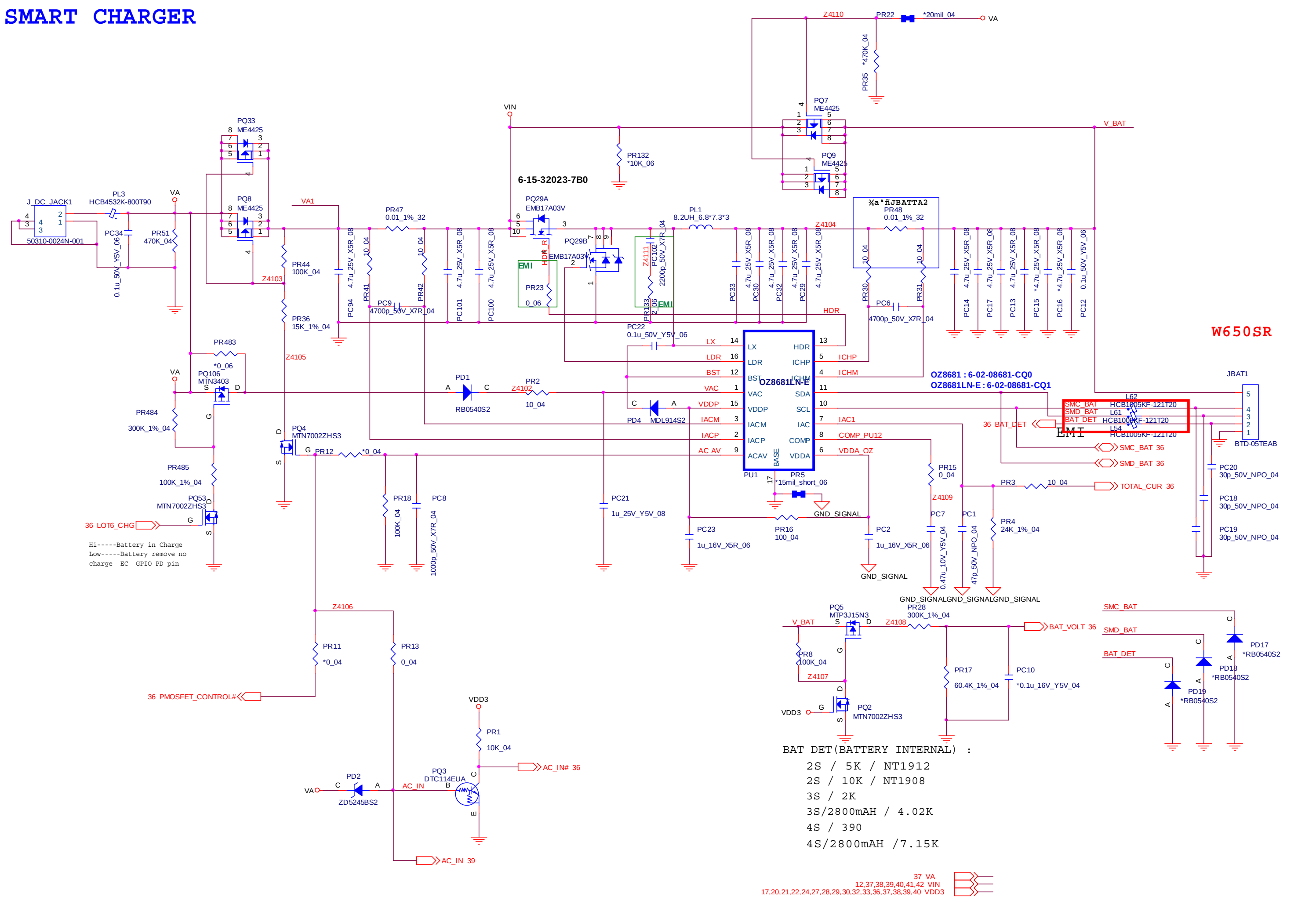
N14P, NVVDD, PEX, FBVDDQ



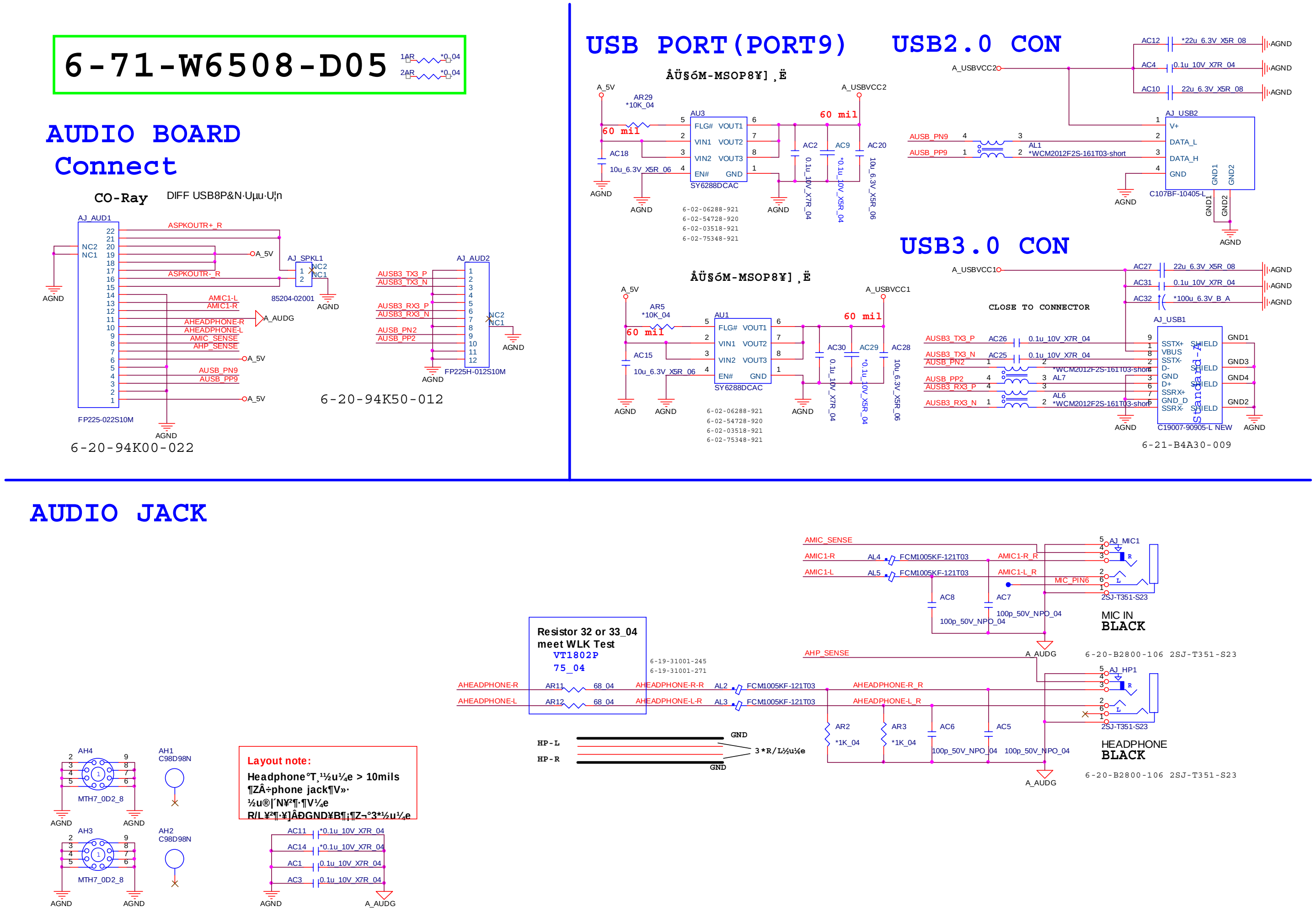
Sheet 42 of 46
N14P, NVVDD, PEX, FBVDDQ

AC IN, CHARGER

Sheet 43 of 46
AC IN, CHARGER



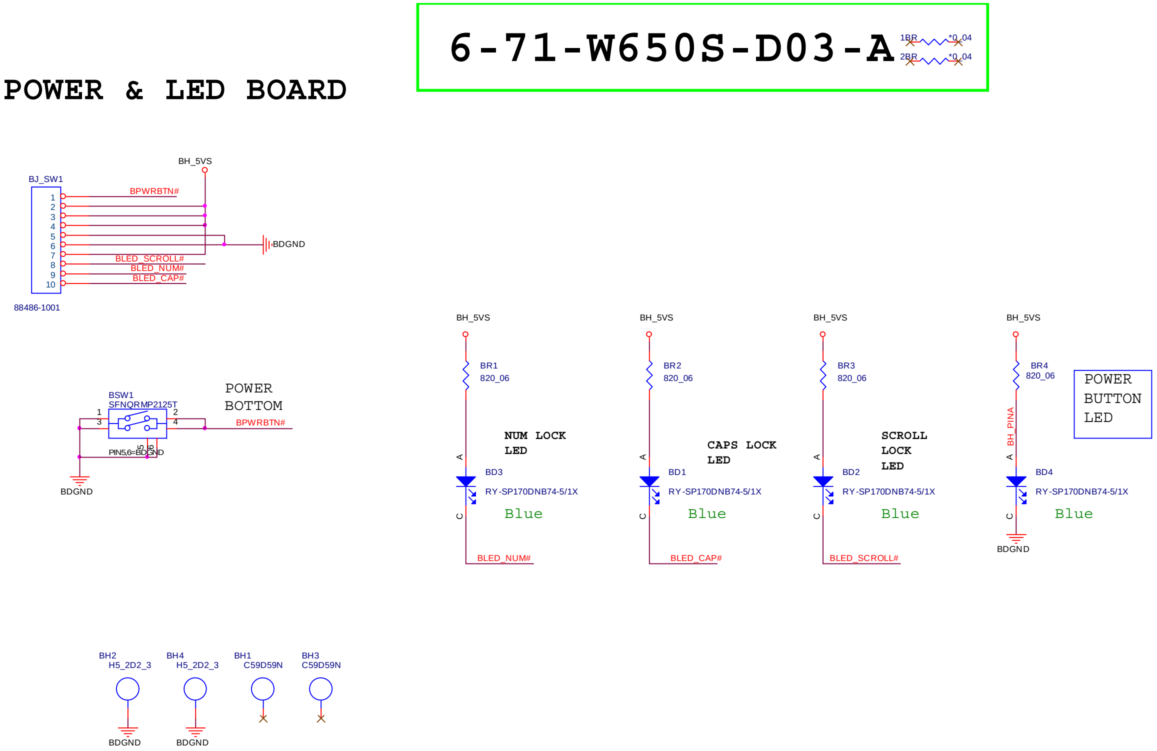
AUDIO BOARD



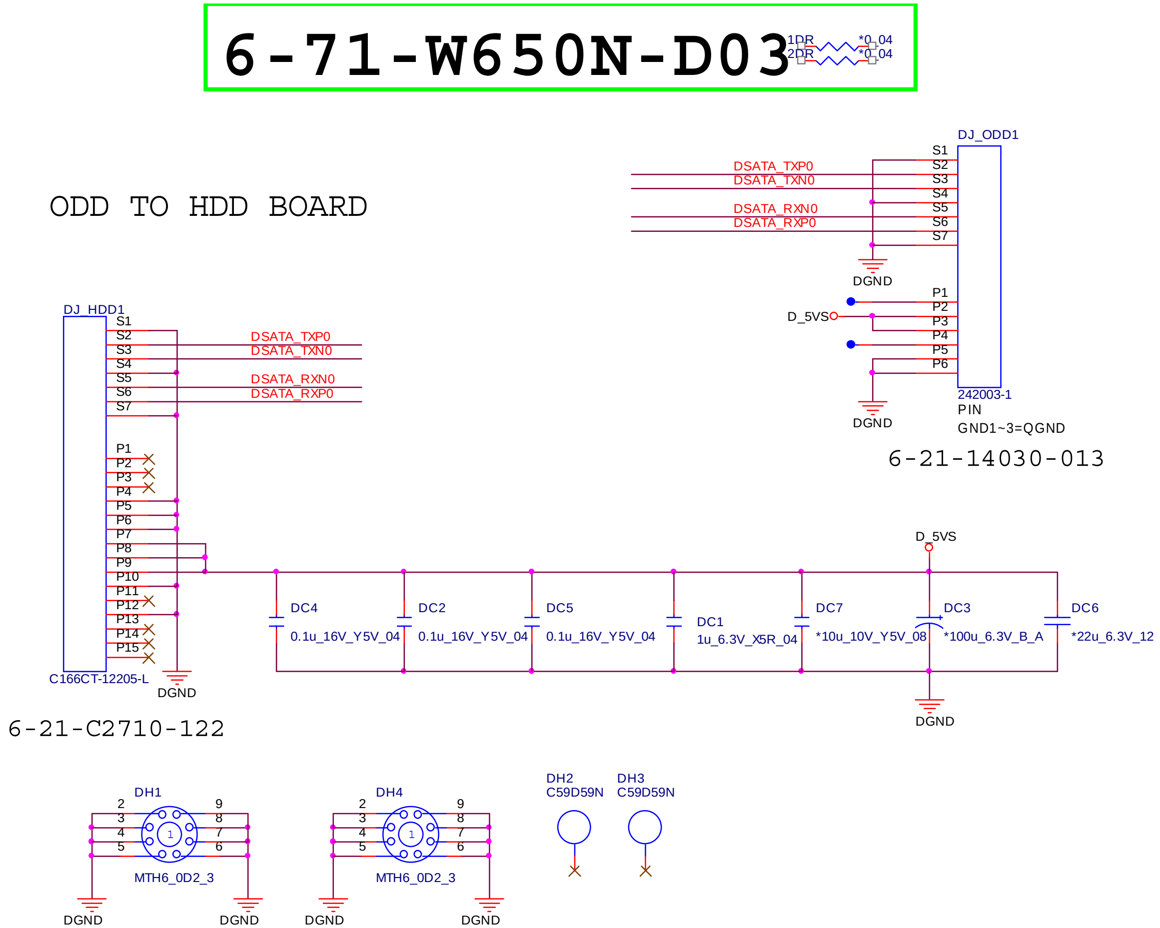
Sheet 44 of 46
AUDIO BOARD

POWER SWITCH BOARD

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POWER SWITCH BOARD



ODD to HDD BOARD



Sheet 46 of 46
ODD to HDD
BOARD

Appendix C:Updating the FLASH ROM BIOS

To update the FLASH ROM BIOS, you must:

- Download the BIOS update from the web site.
- Unzip the files onto a bootable CD/DVD/USB Flash Drive.
- Reboot your computer from an external CD/DVD/USB Flash Drive.
- Use the flash tools to update the flash BIOS using the commands indicated below.
- Restart the computer booting from the HDD and press **F2** at startup enter the BIOS.
- Load setup defaults from the BIOS and save the default settings and exit the BIOS to restart the computer.
- After rebooting the computer you may restart the computer again and make any required changes to the default BIOS settings.

Download the BIOS

1. Go to **www.clevo.com.tw** and point to **E-Services** and click **E-Channel**.
2. Use your user ID and password to access the appropriate download area (BIOS), and download the latest BIOS files (the BIOS file will be contained in a batch file that may be run directly once unzipped) for your computer model (**see sidebar for important information on BIOS versions**).

Unzip the downloaded files to a bootable CD/DVD/ or USB Flash drive

1. Insert a bootable CD/DVD/USB flash drive into the CD/DVD drive/USB port of the computer containing the downloaded files.
2. Use a tool such as Winzip or Winrar to unzip all the BIOS files and refresh tools to your bootable CD/DVD/USB flash drive (you may need to create a bootable CD/DVD with the files using a 3rd party software).

Set the computer to boot from the external drive

1. With the bootable CD/DVD/USB flash drive containing the BIOS files in your CD/DVD drive/USB port, restart the computer and press **F2** (in most cases) to enter the BIOS.
2. Use the arrow keys to highlight the **Boot** menu.
3. Use the “**+**” and “**-**” keys to move boot devices up and down the priority order.
4. Make sure that the CD/DVD drive/USB flash drive is set first in the boot priority of the BIOS.
5. Press **F4** to save any changes you have made and exit the BIOS to restart the computer.

BIOS Version

Make sure you download the latest correct version of the BIOS appropriate for the computer model you are working on.

You should only download BIOS versions that are V1.01.XX or higher as appropriate for your computer model.

Note that BIOS versions are not backward compatible and therefore **you may not downgrade your BIOS to an older version** after upgrading to a later version (e.g if you upgrade a BIOS to ver 1.01.05, you **MAY NOT** then go back and flash the BIOS to ver 1.01.04).

Use the flash tools to update the BIOS

1. Make sure you are not loading any memory management programs such as HIMEM by holding the **F8** key as you see the message “**Starting MS-DOS**”. You will then be prompted to give “**Y**” or “**N**” responses to the programs being loaded by DOS. Choose “N” for any memory management programs.
2. You should now be at the DOS prompt e.g: DISK **C**:\> (C is the designated drive letter for the CD/DVD drive/USB flash drive).
3. **Type the following command** at the DOS prompt:

   C:\> Flash.bat

4. The utility will then proceed to flash the BIOS.
5. You should then be prompted to press any key to restart the system or turn the power off, and then on again but make sure you remove the CD/DVD/USB flash drive from the CD/DVD drive/USB port before the computer restarts.

Restart the computer (booting from the HDD)

1. With the CD/DVD/USB flash drive removed from the CD/DVD drive/USB port the computer should restart from the HDD.
2. Press **F2** as the computer restarts to enter the BIOS.
3. Use the arrow keys to highlight the **Exit** menu.
4. Select **Load Setup Defaults** (or press **F3**) and select “**Yes**” to confirm the selection.
5. Press **F4** to save any changes you have made and exit the BIOS to restart the computer.

Your computer is now running normally with the updated BIOS

You may now enter the BIOS and make any changes you require to the default settings.